The Development of Writing Skills: The Use of Genre-Specific Elements in Second and Third Grade Students' Writing

by

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ABSTRACT

The following study was developed to investigate the development of writing skills in second and third grade students. The recent emphasis on writing, specifically writing in multiple genres, made in the Common Core State Standards (CCSS, 2010) has increased the need to further understand how students write. The NAEP (2002) reports that approximately 77% of fourth grade students have only a general grasp of writing. Despite this poor performance, the Common Core State Standards (CCSS, 2010) have increased the expectations for student writing. The goal of this proposed dissertation, using an holistic literacy perspective, is to shed light on differences in how students write in informative and opinion genres, which skills predict writing outcomes, the extent to which reciprocal effects between writing and literacy are present, and what type of student profiles exist within the classroom. It was found that students received lower scores on opinion writing compared to their informative compositions. It was also found that better reading comprehension was associated with better writing performance in both genres. High vocabulary ability predicted higher opinion essay scores and better performance on a behavioral regulation task predicted better informative essay outcomes. Reciprocal effects between writing outcomes and literacy skill were found, with higher opinion writing scores predicted higher vocabulary outcomes. Finally, students appeared to fall into four latent profiles: high achievers, average achievers, struggling students, and a group of students who have average literacy skill but scored extremely poorly on the opinion essay task.

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CHAPTER 1. INTRODUCTION & BACKGROUND LITERATURE

General Overview

Writing skills play a critical role across the lifespan. Beginning in the elementary grades, students may be expected to write in order to demonstrate their knowledge on a specific topic (Graham, 2006). Writing can be used as a vehicle for increasing a student's understanding of a topic (Graham & Hebert, 2010) or improve other literacy skills (Abbott, Berninger, & Fayol, 2010; NICHD & IRA, 2012). Being able to produce high quality compositions becomes a vital skill for high school students. A majority of college-bound students' writing skills are assessed using standardized tests, and many colleges evaluate a student's qualifications based partially on writing samples (Troia & Olinghouse, 2013). Writing skills are also important in professional settings, required for recording information, reporting news, and in today's world, the necessary tasks of completing e-mails, texting, and other forms of rapid, digital communication. As described, writing skills are essential across development contexts from completing academic writing assignments, composing casual chat messages, or submitting formal work reports (Graham, Harris, & Santangelo, 2014; Kemp & Bushnell, 2011).

Children must begin mastering writing skills early in school so they can successfully build on new knowledge they obtain each year. Knowledge about the writing topic as well as knowledge on how to write both influence compositions and obtaining these types of knowledge is complex (McCutchen, 1986; Olinghouse, Graham, & Gillespie, 2015). Like many academic skills, the hierarchical nature of obtaining writing ability requires that certain skills are mastered in a specific order and takes years to

develop (Kellogg, 2008). The development of these skills can be altered as early as first grade (Kim, Puranik, & Otaiba, 2015).

There is limited research on writing instruction in the early elementary grade and even less research focused on characteristics of young student writing (Englert, Stewart, & Hiebert, 1988; Graham, McKeown, Kiuhara, & Harris, 2012). In addition, information on how children write across different genres (e.g., informative or opinion), outside of narratives, is especially sparse. Therefore, a central aim of this dissertation is to identify, in second and third grade students, child-level variables and literacy skills that predict genre-specific writing outcomes within opinion and informative essays. Developmental and environmental variables, outlined in the following sections, will be used to obtain a holistic view of genre writing in second and third grade. Expanding our understanding of how students learn to write is the first step toward improving student outcomes in writing and across genres.

In a world where writing is ubiquitous, the importance of mastering these skills cannot be understated. Despite their importance, a majority of students are not properly mastering their writing skills. The National Assessment of Educational Progress (NAEP) describes basic level writing in fourth grade as being "somewhat organized" with students also being required to include supporting details. The National Center for Educational Statistics (2002) recommends that by fourth grade, basic level writing should reflect a "general grasp of the writing task they have been assigned." The NAEP also states, "At this basic level, grammar and spelling issues may get in the way of the author's intended meaning." However, the NAEP reports that approximately 77% of fourth grade students are writing at or below this basic level, which indicates that over

three-quarters of fourth grade students have only a general grasp on writing. In contrast, the Common Core State Standards (CCSS; CCSS, 2010) require fourth grade students to use concrete details, facts, quotations, and precise language when writing an informative/ explanatory essay, and the CCSS standards listed for the other elementary grades and genres (opinion pieces and narrative texts) are equally demanding.

Developmental benchmarks for writing have received little attention in the domains of both education policy and classroom instruction. Genre-based writing requirements, as well as more general topics including integrating technology into writing, have rarely been a focus of writing curriculums (Cutler & Graham, 2008) and the CCSS are one of the first educational initiatives that include a prominent emphasis on writing (Applebee & Langer, 2011; Cutler & Graham, 2008; Graham & Harris, 2015). While the Common Core State Standards (CCSS, 2010) attempted to expand the emphasis on writing, the government and educational professionals tasked with the development of these standards faced a significant challenge. That is, complete information on the developmental process of acquiring writing skills, as well as tools for identifying developmentally appropriate benchmarks were not present in the research, and this remains the case.

Connecting Development and Education

The inherent connection between education and development processes is often overlooked in research. As typical students progress through the elementary and secondary grades their academic abilities are developing and improving, but this is true of many other areas as well. Students' ability to self-regulate, their cognitive capacity,

personal preferences, social skills, and physical maturity all develop and change across time. The connection between these variables, and many more, can be used to demonstrate how interwoven development is to the content and instructional format used in the classroom. Environment is also a key influence in both a developmental and educational context. It is critical that an appropriate framework is used to conceptualize these potential influences across time. The bio-ecological model and dynamic systems theory frameworks provide the structure needed to consider the interplay between education, environment, and development. These considerations along with the outlined theories will be invaluable for the interpretation of the study results as well as aid in identifying implications and future directions for this research.

Bio-ecological model

The bio-ecological model focuses on how the various level of context (family, school, neighborhood, political climate) can influence countless aspects of a child's life as they develop (Bronfenbrenner & Morris, 1998). The way in which multiple sources of influence are considered in this model also serves to demonstrate how certain factors may be more or less important to a child based on age. For example, a child in second grade will interact with parents, teachers, and peers daily, but their time spent with parents and teachers is likely to be the most influential on their development (Siegler, DeLoache, Eisenberg, & Saffran, 2014). As this child matures to adolescents interactions between parents, teachers, and peers continue but it is likely that peer interactions become more and more influential. This theory is also useful for considering the impact a school system, teachers, and peers can have on multiple facets of a child's development, whether it is academic or social.

Dynamic-systems theory.

Dynamic-systems theory highlights how change may occur over time as well as internally, within a highly complex system. This approach takes the concept of multiple influences across development even further than the bio-ecological model, to describe how specific variables at one time point may influence other variables in the future, and ultimately change the developmental trajectory of an individual across time (Yoshikawa & Hsueh, 2001). As a simplified example, a young child may have a favorite animal toy, which in turn increases their interest in animals. As a result, once they are of school age they may seek out books on animals, potentially improving their reading and vocabulary skills along with their knowledge of animals. At the same time, because animals are a common topic of interest, they may have an easier time interacting with their peers and forming social groups compared to a child with a less-typical upbringing or highly specialized interest. To summarize, child-specific characteristics in one domain can influence multiple aspects of their life, across multiple domains and time. The interwoven nature of these influences makes it extremely difficult to identify any one variable of influence for a specific outcome. This in turn supports research where a holistic approach is taken and multiple variables of influence are considered.

Lattice Model.

A specific application of these developmental frameworks can been seem in the use of the "Lattice model"(Connor et al., 2014; Connor et al., 2015). The authors describe this model as a lattice, or web, where linguistics skills (semantic knowledge and self-regulation), text and code-based processes, and cognitive processes influence academic outcomes (reading comprehension) across multiple time points. The benefit of

considering variables in this lattice structure is two-fold. First, the lattice reveals how students excelling in one area may be unable to compensate for a deficit in another area because the development of each skill area is reliant on multiple influences. For example, excellent decoding skills do not ensure sufficient reading aptitude unless adequate comprehension ability is also present. The second benefit related to using this model is its ability to illustrate reciprocal effects. While a considerable amount of research is carried out to determine the directionality of specific relations it is critical to acknowledge that bi-directionality is also a possibility. Multiple studies have identified these reciprocal effects across diverse domains (Connor et al., 2014; Lachman, 2006; Negretti, 2012) revealing that these connections are not only common, but essential to consider when pursuing developmentally-based research. While determining how the lattice model relates to writing will not be tested directly in this study, it will serve as further theoretical rationale for considering genre-specific writing outcomes from a holistic perspective.

Study Overview

The goal of this study is to elucidate the relation between students' reading, vocabulary, and writing ability in early elementary grades (grades 2–3). Specifically, the aim is to explore how genre-specific writing outcomes are influenced by age, sex, and literacy abilities. The hope is to begin to identify developmental milestones that emerge during this period of childhood. Ideally, the results will also reveal whether the standards set-forth in the Common Core standards are practical and attainable. Investigating the relation between reading and writing skills is important to consider, especially in the

younger grades because there are strong associations between writing, reading, and language skills (Connor, Ingebrand, & Dombek, 2014; Mehta, Foorman, Branum-Martin, & Taylor, 2009). Considering writing outcomes within the holistic context of literacy ability may provide a more complete view of how children learn to write in different genres.

The genres of focus will be opinion pieces and informative/explanatory essays, both selected directly from the CCSS. These genres were selected because they have rarely been the focus of studies, especially with younger children, and are garnering additional interest due to the standards set forth by the common core. Narrative samples will not be collected, as there is a greater proportion of studies focused on narrative and story writing. Narrowing the focusing to two specific genres will also allow differences and similarities in the relation between literacy skills and writing outcomes to be highlighted. For example, students' early reading skills may have a stronger impact on their writing in informative contexts, whereas vocabulary skills may have a greater impact on the number of genre element a student includes in their opinion composition.

The lattice model would hold that reciprocal effects exist among reading, vocabulary (i.e., a key language skill associated with literacy; Aarnoutse, Leeuwe, Voeten, & Oud, 2001; Nagy, Berninger, & Abbott, 2006; Shanahan & Lonigan, 2010), and writing skills. While the interplay between reading, vocabulary, and writing skills has been studied (Berninger, Abbott, Abbott, Graham, & Richards, 2002; Graham & Hebert, 2011; Olinghouse & Wilson, 2013), the influence of these skills on writing in a specific genre has not been extensively investigated. It is possible that improving a student's

reading comprehension could improve their writing outcomes, while direct instruction in writing may also improve reading comprehension and vocabulary.

The dearth of writing studies is further increased when the focus is narrowed to examining writing ability and genres longitudinally or across consecutive grades (Abbott et al., 2010). Therefore, exploring the developmental trajectory of writing, to the extent possible with concurrent data collected for children at different ages, will be examined. Grade-level information about writing outcomes may serve to inform policymakers about the appropriateness of the standards being implemented and could lead to improvements in writing instruction (Hayes & Olinghouse, 2015). As students' writing develops, they begin to use more complex organizational structures in their writing (Berninger, Fuller, & Whitaker, 1996). Obtaining information on the growth of writing ability within separate genres has the potential to inform developmental models of writing being applied to elementary school children.

In addition to the development of writing and related skills, students bring a diverse combination of skills that can influence the quality of writing they will produce. To better understand how different constellations of skill can influence writing outcomes specific profiles of these skills might be developed. Information about potential profiles would provide information about the skills students are likely to possesses, as well as which skills, or combinations of skills, are most important for generating compositions with a greater number of relevant elements in a specific genre.

Theoretical Framework: Writing Models

Writing is a fluid and iterative process. Theoretical models developed in this area have attempted to capture this complex procedure and simplify it into meaningful segments. Models of the writing process gained wide usage in the 1980s, starting with the Flower and Hayes model (Hayes & Flower, 1986). This original model was intended to reflect writing done by typical adult writers and divided the process of writing into three stages: planning, translating, and reviewing. The planning stage, often a starting point for adult writers, is not commonly seen in young writers (Berninger, Abbott, Whitaker, Sylvester, & Nolen, 1995). Children are more likely to write content as it is generated, rather than plan (Bereiter & Scardamalia, 1987). In addition, more immediate tasks necessary for writing, like text generation, may require a majority of a child's available cognitive resources, making planning highly inefficient or impossible (Graham et al., 2000). After text has been generated in the translating stage, the composition may be re-read and revised in the reviewing stage. It is in this step that Flower and Hayes (1986) identified the largest differences between novice and expert writers. Adults also differ greatly from children in the reviewing stage. As a person gains writing experience the focus of revising shifts from purely word-based editing to a more global view of the written work. Flower and Hayes also found that it is more difficult for editors to revise self-generated work versus novel text.

Soon after the Flower and Hayes model was developed, Bereiter and Scardamalia (1987) published their description of writing development in children. Bereiter and Scardamalia proposed that a child's understanding of writing stems from knowledge of oral language. The authors called this concept the *knowledge-telling model* and presented writing in the context of general language use. The knowledge-telling model begins with

a child' s conceptualization of a writing assignment. Following the writer's perception of the task, the knowledge-telling process is utilized to identify a topic and genre, generate content from memory, check content for appropriateness, and then add to the composition. This loop continues until the writer no longer has any memorized content to add or motivation is lost. A more complex model was presented to describe the process used by professional writers, call the *knowledge-transforming model* (Bereiter & Scardamalia, 1987). This model includes problem-solving processes along with the components of the knowledge-telling model.

Although the knowledge-telling and Flower and Hayes models were developed in the 1980s, they are still highly relevant today (for examples see: Aalst, 2009; Hayes, 2011; Olinghouse & Wilson, 2013; Wong, 2014). However, relevance does not ensure accuracy, and the knowledge-telling and Flower and Hayes writing models continue to be updated and refined. Recently, efforts have been made to combine the features commonly referenced in the traditional writing models with present-day policy and research findings. In part, it is the intention of this study to use past research findings, in collaboration with new data, to further explore model for how students learn to write.

In a more recent iteration of the Flower and Hayes model, Hayes describes writing as a process occurring across different cognitive levels. These levels account for the influence of factors outside the writing process itself (Hayes, 2012; Hayes & Olinghouse, 2015). The first level, the *control level*, encompasses features that shape the initial writing process. Motivation, planning, goal setting, and the writing scheme/genre occur at the control level. The second level is the *process level*, which include the physical writing process as well as environmental features of the writing task. Finally, the

resource level is comprised of the functions that are needed for writing but are not writing specific; attention, memory span, and reading ability are all encompassed in the resource level. Hayes' collection of stages paints a more holistic and inclusive view of writing and its processes but, like the original model, its primary purpose is to describe the typical writing process utilized by adults.

Hayes further expanded the information available on writing development by combining his new theory with the original knowledge-telling model. Different types of writing structures commonly used by young writers were identified using the modified knowledge-telling model (Berninger et al., 1996; Hayes, 2012). The types of "knowledge-telling writing structures" used by developing writers were classified into three categories. One type, called flexible-focus, is a progression of writing in which each additional sentence draws its subject from the previously written sentence. The result is a collection of sentences with an ever-shifting series of topics, as each sentence is only associated with the one previous. This results in little, if any, overall cohesion (Fuller, 1995; Hayes, 2012).

The second sentence-structure, the fixed-focus model, is identified by the constant repetition of a common topic. Each sentence may reference different aspects or characteristics of the chosen topic. The connection to the common topic is always directly stated, not elaborated on or merely implied. The most complex sentence structure is the topic-elaboration type. Topic-elaboration writing is the most commonly used sentence structure for students approaching sixth grade. In this type of writing there is one global topic but the writer uses a number of related subtopics and details to convey their information.

These three sentence structures have been studied in writing generated by students in first through ninth grade (Fuller, 1995; Hayes, 2012; Hayes, 2011). The flexible-focus model, while never very prevalent, is most often seen in young students (before fifth grade) and never exceeds making up 10% of a total composition. In contrast, fixed-topic text is very common in early grades and makes up a majority of a student's composition until approximately fifth grade. Topic-elaboration sentences make up just over 10% of a first grader's writing, but by fifth grade this more complex structure accounts for about half of the sentences in a written composition. This developmental view shows how, within the knowledge-telling model, students are gaining a better understanding of sentence and text structure.

Using the knowledge-telling model, the updated Hayes model, the three types of sentence-structures and broader developmental theories for context, an image of how children's writing skills develop can begin to be formed. However, not all aspects of these models are reflected in the CCSS. Many of the components in the *control level* of Hayes' most current writing model (which includes the writing schema/genre) are completely absent from the CCSS. Other components that are mentioned in the CCSS are not accompanied by any instructional guidance for teachers or expectations of background knowledge for students (Hayes & Olinghouse, 2015). While genre is mentioned in the CCSS, there is no information regarding the underlying learning mechanism or details on how a student is expected to gain the genre knowledge they will need to compose the required essays.

There is also a disconnect between developmental writing models and the writing standards described in the CCSS. The models describe a process that is chiefly internal,

occurring within the writer while the CCSS focus on observable tasks. For example, the models allow for a student to evaluate text internally, while the CCSS only mention editing or rewriting, which must physically occur. Finally, across the writing models and the CCSS there is little, if any, reference to direct instruction. This also elucidates the need for a model for *how* students learn to write that includes, and is informed by, instruction.

Influence of Genre

Historically, the purpose of writing and the classification of genres has served many purposes, both academic and social (Nystrand, 1982). In some settings, the function of a text can be defined purely by the language structure, considered the *rhetorical tradition* (Donovan & Smolkin, 2006). Text can also be conceptualized in the *social tradition*, where language structure and written content have a reciprocal influence on one another. The *cognitive-psychology tradition* identifies genres through experience and group language-use. The *cognitive-psychology tradition* thinks of text generation as a means to complete cognitive tasks. Because this study lies completely within an educational context the definition provided from *cognitive-psychological tradition* is most relevant.

Simply put, genres serve as method for classifying text. These categories are based on the content, text structure, linguistic features, and intended audience of a composition (Badger & White, 2000). In both writing research and classrooms, stories and informational genres have received the most attention (Donovan & Smolkin, 2006). While these two genres, especially story writing (more broadly categorized as narratives),

are often practiced in school, little is known about how students actually conceptualize the narrative genre. This is even truer for genres that are rarely seen in classrooms and research, like opinion, explanatory or informative. There is little conclusive research on the impact of composition genre on writing outcomes and much of the available information is limited to a specific grade or age. Despite these shortcomings some generalizations can be made to connect the complexities of genre to broader writing models. Write in a specific genre may also impact overall writing outcomes.

A young child's understanding of genre is directly connected to their understanding of conversational schemas (verbal scripts) of the same type (Bereiter & Scardamalia, 1987). Oral schemas are based on a set of specific rules, dependent on the interaction, but are extremely flexible or "open". Two or more voices are required for a conversation and each may react to any previous comments or questions. Children can typically adapt a specific schema, depending on the context and audience involved in the interaction, when utilizing oral language skills.

It is challenging for children to follow general schema or genre guidelines when writing because it lacks the support provided by another voice. Few children are able to adjust their writing for specific audiences without the support of additional verbal guidance (Bereiter & Scardamalia, 1987; Hayes & Olinghouse, 2014). While children may be familiar with the schema of "opinion" and capable of having a relatively complex conversation about their viewpoints, their writing on the same topic is likely be short and one-sided. This unbalanced skill-set explains why even very young students may understand and identify genres correctly, but are unable to use them in writing. Typical students learn schemas and genre structures implicitly but cannot consciously manipulate

them unless explicitly taught. However, crossover learning from genre to genre can occur (Bereiter & Scardamalia, 1987; Harris, Adkins, & Graham, 2014; Harris, Graham, & Mason, 2006; Hüttner, 2008).

Genre Knowledge

Another aspect of writing that can be conceptualized within the broad framework of a writing model is genre knowledge. Genre knowledge is the knowledge a writer has about a specific genre. A writer may use their knowledge of genre to identify a type of text and to determine the compositional strategies best suited to complete a writing task (Olive, Favart, Beauvais, & Beauvais, 2009). Specific areas of knowledge, within writing, have been identified and divided into a number of sub-types. In broad terms there are three components of knowledge that can be applied across a variety of topics or skills. *Generalized knowledge* captures a person's general mental prowess and ability to problem solve. This component of knowledge, while important, is not domain specific and therefore will not be discussed here in greater detail (McCutchen, 1986). Most relevant to writing, *discourse knowledge* is described as the metalinguistic knowledge about text, writing strategies, linguistic structures, and specific conventions like grammar. Finally, *Content knowledge* is factual knowledge related to a specific topic area.

In the knowledge-telling model a child uses their discourse knowledge to decide what type of text they need to write (Bereiter & Scardamalia, 1987; Olinghouse & Graham, 2009). As the child writes they continue referring back to their mental guide to retrieve the appropriate content. McCutchen (1986) found that children's writing was of better quality when they knew more about a topic, but high amounts of content

knowledge did not compensate for low levels of discourse knowledge. In addition, students with high levels of discourse knowledge always generated high quality texts, regardless of content knowledge. Discourse knowledge also appears to be one of the components driving developmental differences in writing quality. Older students gain a better and more complex understand of text structures and language and therefore generate texts of a higher quality (Benton, Corkill, Sharp, Downey, & Khramtsova, 1995; McCutchen, 1986; Olinghouse & Graham, 2009).

Within discourse knowledge additional distinctions can be made; *declarative knowledge* categorizes knowledge relating to a topic that is conscious and can be verbalized and explained (Olinghouse & Graham, 2009) and *procedural knowledge* is the ability to generate written text (Olinghouse & Wilson, 2013). This declarative knowledge category can include personal aspects of writing like motivation (why a person writes) as well as knowledge about writing production or the inclusion of specific topics (how they write or what they include). In past studies, declarative knowledge (as it pertains to genre) has been measured through student surveys or interviews intended to capture how a student thinks about writing from substantive, production, and motivational points of view (Gillespie, Olinghouse, & Graham, 2013; Graham, Harris, & Mason, 2005; Graham, Schwartz, & MacArthur, 1993; Harris et al., 2006; Olinghouse & Graham, 2009).

To capture procedural knowledge, specific elements within a composition can be classified. Called *superstructures*, the overall organization features in a piece of writing can differ across genre. The amount and complexity of certain text conventions, along with paragraph order or hierarchical structure, can reveal how well a person can generate text of a specific type (Olive et al., 2009). Also global, *macro-level features* like

grammar, genre elements, and paragraph structure serve as good indicators of quality (Beers & Nagy, 2010; Donovan, 2001). A majority of students focus on macro-level features when writing.

Micro-level features are small text based features like verb tense or connectives. While there are some differences between genres seen at the micro-level, it is not as consistent or reliable as the more global indicators (Olive et al., 2009). Other fine-grained features like word choice are not reliable indicators of which genre a writer is utilizing. However, greater genre knowledge benefits writers by helping them use superior vocabulary (Olinghouse & Wilson, 2013). Argumentative texts appear to require more cognitive effort then narrative texts for fifth grader writers based on macro-level features (Olive et al., 2009). It was hypothesized that this additional effort was needed because argumentative texts require advanced and accurate planning. Expository genres are also challenging as students are rarely exposed to them (Duke, 1998; Olinghouse, 2008), limiting the amount of genre knowledge they can utilize while writing (Winograd & Bridge, 1986).

The influence of *content* or topic can also impact the characteristics of a written product in a number of ways. If the given writing prompt dictates a specific topic be discussed, as the case in a number of studies including this one, a student's motivation and interests in the subject, as well as their knowledge about the topic will influence the final product (Benton et al., 1995; Saddler & Graham, 2007). Studies reveal that content-specific knowledge serves as an advantage for a writer who has, at a minimum, an average understanding of discourse knowledge but did not provide poor writers with enough tools to compensate for their lack of knowledge about the writing process

(Benton et al., 1995; McCutchen, 1986). Fourth grade students determined to have 'high knowledge' relating to baseball were shown to include more topic-specific vocabulary as well as focus their writing on the overarching goals of a baseball game (DeGroff, 1987). Students with 'low knowledge' include more general statements and less topic-specific information. Students with more content knowledge have also been shown to write longer compositions (Benton et al., 1995).

Prior Work on Writing and Genre

The motivation and inspiration for this study has multiple sources. A primary driver is the recent policy changes relating to education and the CCSS. The new CCSS bring writing into the foreground of education policy, a place it has rarely occupied. The CCSS also increase the pressure on teachers and the expectations for students, especially in the younger elementary grades. Another motivating factor in the creation of this study is tied to the general lack of research on genre knowledge. While there have been a number of rigorous studies on genre and writing that have laid the groundwork, it is important to expand on this information and use past results to inform future research. This study is intended to build off the results from the studies described in the following paragraphs and develop a more complete and developmentally focused model of how write across different genres.

A study by Olinghouse (2008) centered primarily on predictors of writing quality, focuses on several key variables that are also of interest for the study. This study serves as a general guide for how to conceptualize and measure variables like advanced planning and compositional quality as well as how they relate to one another. Olinghouse

(2008) focused on student and instructional predictors for third grade narrative writing outcomes. The student-level measures included IQ, word reading, grammatical understanding (syntax), and writing assessments. Information on teacher instruction was also collected using surveys. The district's curriculum focused on narrative and expository writing in third grade. It was found that gender, compositional fluency, IQ, word reading, and grammatical understanding were all significant predicators of writing quality at the student level. Differences between classrooms explained 9.5% of the variance.

This study demonstrates the importance of focusing on students' individual differences when researching writing outcomes. The results also lend support to theories that conceptualize writing within the context of literacy skills; IQ and word reading were significant predictors of writing outcomes. While 9.5% of the variance was explained at the classroom level, it was unclear in this study what variables actually accounted for this difference. These results reveal that student individual differences play a key roll in understanding writing outcomes but also raise a number of questions. Without considering developmental changes, it is hard to understand what impact these predictors would have at different ages. In the study the author mentions that handwriting fluency, gender differences, and planning ability are related to a student's age and development, which could not be considered due to the study design. The amount to which these results generalize to other genres also remains.

A study by Kamberelis (1999) was driven by the questions related to students' genre knowledge, across a variety of genres. The genres of interest were narratives, science reports, and poetry. Students in kindergarten through second grade participated in

the study. Each child composed three texts, one in each genre, during the spring portion of the school year. The classrooms were observed and the teachers and students were interviewed to assess what aspects of writing were taught and how often students were asked to write. Features in the students' writing were coded for genre. The coded genre features occurred at various levels of text (from micro to macro). Some global features were also considered.

The statistical results of this study are less generalizable due to the small and restricted sample. There were only 54 students total, about 17 per grade, and grade was completely confounded by classroom. Qualitative analysis was used to group the writing into different categories based on how accurately the student reflected the intended genre. Some students were able to write within the intended genre while others composed narratives for all three passages or created hybrid texts that contained features from multiple genres. The quantitative analysis revealed only two main effects for grade, but a number of grade by genre interactions. In part, these results support the hypothesis that age may not have a large influence on genre knowledge. The high level of exposure to narrative texts also appears to heavily influence writing outcomes. Students generalized narrative features into other genres but did not generalize specific structures from other genres. While the genres specified in this study do not align with the CCSS, the results from this study demonstrate that young children do understand genres. A larger sample with longitudinal data would be required to draw more robust conclusions.

The study summarized below, carried out by Olinghouse & Graham (2009), focuses on whether second and fourth grade students' discourse knowledge predicts writing performance. The authors controlled for a number of writing variables

(handwriting fluency, spelling, advanced planning, and attitude towards writing) and non-writing variables (grade, gender, and basic reading skills) to best illuminate the influence of discourse knowledge on writing outcomes. Discourse knowledge was broken into categories of interest: substantive knowledge (carrying out the writing process well), production (mechanical and linguistic areas of writing), motivation, story elements, and irrelevant information. This information was retrieved through a one-on-one interview with the students.

The study results reveal that the five discourse knowledge categories did account for writing quality variance, above and beyond the controlled for variables. This finding reinforces the importance of discourse knowledge in writing. By looking at students at two grade levels, the authors were also able to consider changes in knowledge between the second and fourth graders. It was found that fourth grade students had significantly more knowledge overall, primarily around characteristics of good writing and the abilities required to write well. When 'knowledge about story characteristics' was compared across grade there was no main effect; students mentioned approximately the same number of story traits across grades. This finding reveals the need for more information about student knowledge across genres. In addition, it is also possible the result would be different if the students had discussed the characteristics of informative writing. This study takes the questions asked by Olinghouse and Graham and builds on their results to expand knowledge about writing and writing knowledge not only within grades and genre but also across them.

In a recent article by Olinghouse, Graham and Gillespie (2015) the topic of discourse knowledge was investigated in a fifth grade sample. The students were asked to

write a story, persuasive paper, and an informational text, each within a designated 15-minute timespan. The writing score was based on the overall rated quality as well as the inclusion of the appropriate genre elements. After controlling for topic interest, spelling, handwriting fluency, length of text, and gender, the authors found that discourse knowledge had a statistically significantly positive relationship on the inclusion of genre elements and the quality of writing in all three genres. Topic knowledge was also found to predict writing quality in all three of the writing samples. The influence of topic knowledge was significant even after including discourse knowledge in the equation. In summary, both discourse and topic knowledge contributes unique variance to writing quality and to the number of genre specific elements included in writing.

These results reveal that a students' knowledge about writing can influence writing quality. In addition, they emphasize the importance of choosing prompts that require as little topic knowledge as possible if you were solely interested in writing quality or the inclusion of genre elements. The authors also explain that, while developing writers may have limited skills, their discourse knowledge may still play a large role in the quality of the students' writing. The writing abilities of students in grade 5 are typically considered stronger than those of students in second and third grade, but are still developing.

Influential Variables on Writing

To fully explore the characteristics of student compositions, highly-salient and distal skills must be considered as possible sources of influence on writing outcomes. Using this cumulative view provides the opportunity to determine which skills are most

predictive of writing outcomes as well as how the relation between literacy skills changes across genres and over time. Addressing these questions will expand the current body of knowledge on writing as well as inform future research and could assist in the development of writing-centered interventions.

Reading comprehension

The academic skills of writing and reading are highly related and it is important to consider both constructs when possible (Berninger et al., 2002). The correlation between reading and writing skills as been documented between .50 and .66, depending on the grade and assessment used (Mehta et al., 2009; Vellutino, Tunmer, Jaccard, Chen, & Scanlon, 2004). In addition, certain aspects of writing are often used to aid in text comprehension through graphic organizers or composing summaries. Some topics, like genre, can be taught in both reading and writing contexts. A detailed study by Mehta and colleagues revealed that, while related, the reading and writing remain separate, unique constructs (Mehta et al., 2009). However, the relation between reading and writing remains nuanced; for example, use of certain assessments has convoluted the reading-writing connection by measuring reading comprehension skills using a series of written responses to open-ended questions, requiring test-takers to utilize both skills (NAEP, 2011). Due to the complex and interwoven nature of these abilities, it is important to consider reading comprehension when focusing on writing outcomes (Connor, Ingebrand, & Dombek, 2014).

Reading ability at a young age is often correlated with text exposure (Purcell-Gates, 1996). This connection between text exposure and writing appears to exist as well; it has been repeatedly found that, even before they can read, young children can identify

different genres and recognize differences in page layouts and book formats that representative of differences in text content (Donovan, 2001; Langer, 1985). This early understanding of text differences seems to stem from a child's understanding of title placement and the use of labels within different text types. Based on these finding, understanding a students' reading ability is highly related to capturing a student's expected writing skills.

Vocabulary

Language and vocabulary skills have also been shown to influence writing outcomes. 'Language-use' can be used to encompass a student's ability to both understand and generate complex words and sentences in oral and written contexts. Students' exposure to words via oral language or text provides opportunities to increase vocabulary knowledge as well as receptive and expressive language (Penno, Wilkinson, & Moore, 2002). A student may use their language and vocabulary knowledge to improve their own writing (Fitzgerald & Shanahan, 2000). The specific nature of this relation can also be viewed from a developmental standpoint. Differences in vocabulary use have been found in the writing of early and late elementary school students (Olinghouse & Leaird, 2008). There is also evidence that suggests students use different types of words depending on the genre in which they are composing (Olinghouse & Wilson, 2013). Considering these language components is crucial when a holistic view of writing ability is desired.

Handwriting Fluency

Writing fluency or handwriting ability can impact writing quality, regardless of genre. Fine motor control is particularly important to consider when evaluation writing in

very young children (Haney, Bissonnette, & Behnken, 2003; Molfese et al., 2010). In older students, tasks like handwriting slowly become automatized. This automatization frees up cognitive resources that can then be used on idea generation and self-monitoring (Graham, Harris, & Fink, 2000; Graham, et al., 1997). The automatization of handwriting is a long process; in elementary school, and even high school, handwriting fluency plays a significant role in predicating writing quality (McCutchen, 1996; Olinghouse, 2008).

This connection between writing fluency and writing quality is also important because different genres influence the amount of cognitive effort students must put forward. A student weak in writing fluency will be at a double disadvantage if also required to write in a cognitively taxing genre (Olive et al., 2009). Measuring writing fluency allows the complexities of actually *writing* to be accounted for, as it is related to how the writer is physically forming letters and words. This is separate from the challenges associated with writing to a prompt in a specific genre.

Writing fluency is also related to the total amount of time a student needs to complete a written composition. Depending on the purpose of the study, the amount of time students in other studies are typically given when responding to a prompt differs broadly. Previous studies range from as little as 5 minutes (Connelly, Dockrell, Walter, & Critten, 2012) up to a 20-40 minute range (Beard & Burrell, 2010; Brindley & Schneider, 2002; Mehta et al., 2009; Nippold, Ward-Lonergan, & Fanning, 2005).

Genre Elements

One of the most perceptible differences between writings of a specific genre is the genre-specific elements included within the composition. These features of the text can be qualified based on recommendations from the CCSS as well as rubrics for scoring

writing found in the previous literature. While not all of the features mentioned for specific genres must be included to correctly classify a document, the quality of a compositing can be partially determined by how many and how well genre elements are used within a text (Graham, Harris, & Hebert, 2011; Graham et al., 2005).

The standards featured within the common core for opinion writing (in the elementary grades) emphasize the importance of introducing the topic, stating an opinion, supplying reasons for support, connecting phrases and idea through appropriate word choice, and providing an conclusion (CCSS, 2010). These features are mentioned repeatedly in the research literature (Graham, Harris, & Mason, 2005). Including details that support and elaborate selected reasons also increases the quality of an opinion essay (De La Paz, 1997). More advanced writers may also include, comparisons or contrasts related to the opinion, information about opposing viewpoints, emotional or loaded language, and information to discredit the other opinions. Selection and use of genre elements in opinion writing also requires the author to consider the possible position and knowledge level their intended audience has on a specific topic (De La Paz, 1997; Tower, 2003).

Informative/explanatory texts also have genre-specific features that can be used to identify more complete compositions. Some of the features overlap or are similar to the elements in an opinion essay, where as several are unique. Again, the CCSS provide a suitable starting point for determining some of the central genre elements. For informative/explanatory texts the standards include introducing the topic, providing relevant facts, details, and definitions, using linking words, connecting relevant sections of information, and providing a conclusion (CCSS, 2010). Additional features include a

formal thesis statement, additional elaborations on the mentioned facts, and comparisons or contrasts to similar topics (De La Paz, 1997; Graham et al., 2005; Tower, 2003). Writing with a voice solely grounded in reality and the use of 'timeless' verb tenses may also be prevalent in Informative/explanatory texts (Donovan, 2001).

Self-Regulation

In addition to directly related literacy skills, more distal student characteristics can influences writing outcomes. It is important to examine variables that may have a significant impact on student learning, whether they are directly related to academic or behavioral competence (Olinghouse et al., 2015). One prominent example of this type of variable is self-regulation. Self-regulation is a multidimensional construct that is conceptualized as a constellation of skills, including behavioral regulation, emotional regulation, executive function, and cognitive flexibility (McClelland & Cameron, 2012; Lin, Coburn, & Eisenberg, 2016). These characteristics are often tied to temperament and can be the result of biology, reactivity, social interactions, and life experiences (Morrison, Ponitz, & McClelland, 2010).

Of particular interest for this study, the area of behavioral regulation has been identified as a predictor of academic outcomes (Cameron Ponitz et al., 2008; McClelland et al., 2007, 2014; Ponitz, McClelland, Matthews, & Morrison, 2009). Behavioral regulation can be conceptualized as having three components: inhibitory control, attention, and working memory. Each component has been shown to relate to academic achievement, especially in the early elementary grades. A number of studies have revealed a positive correlation between higher behavioral regulation and higher literacy (McClelland et al., 2007) and math achievement (Ponitz et al., 2009). The components of

behavioral regulation are also relevant in a developmental context. In one study, attention span-persistence at age 4 predicted college graduation at age 25 (McClelland, Acock, Piccinin, Rhea, & Stallings, 2013).

White and Bruning (2004) described an additional aspect of self-regulation. These authors explain that knowledge is not always presented through behavior (e.g. completing a task accurately) but will depend on a person's motivation, beliefs and confidence at the time a task is completed. Including components of self-regulation as a variable in this study allow social and emotional characteristics to be considered as a predictor of writing outcomes, along with the traditional academic measures.

The connection between self-regulation and writing has been studied in multiple contexts, often within writing interventions built around self-regulation skills (Graham & Perin, 2007), but overall the research is still relatively limited (Graham, 2006). In the writing literature, self-regulation often serves as a set of foundational skills, necessary for completing the mentally-tasking process of writing. Once taught a set of strategies or goals, a student utilized self-regulation skills to successfully follow the steps and complete the writing task at hand (Ferretti, MacArthur, & Dowdy, 2000). These skills can range from personal processes like planning and revising, behavioral processes like self-monitoring, and environmental action like help-seeking or adapting the structure of the environment (Malpique & Veiga-Simão, 2015).

A specific example of these interventions is Self-Regulation Strategies Development (SRSD), a writing intervention that utilizes the relation between self-regulation and writing outcomes (Harris, Santangelo, & Graham, 2008). This intervention was originally based on the Flower and Hayes writing model but was expanded greatly to

account for the role an individual student can play during the completion of a writing task or assignment. SRSD uses a strategies instruction approach, where the student it taught steps centered on successfully completing the writing process. Students are taught explicit strategies using a series of stages (Stage 1: Develop background knowledge, Stage 2: Discuss it, Stage 3: Model it, Stage 4: Memorize it, Stage 5: Support it), providing them with a writing plan they can follow when completing a written assignment (Harris & Graham, 2009). This approach is unique in that it not only includes instruction on writing strategies but also includes components that serve to support and improve students' self-regulation. Tools for tracking progress and increasing student motivation are also common. As a whole, the combination of strategy instruction and encouragement during the SRSD intervention aim to improve writing performance and change any preconceived negative feelings the students may have towards writing.

In multiple studies, SRSD has been shown to improve the writing performance of struggling writers (Graham, Harris, Fink-Chorzempa, & MacArthur, 2003) as well as increase the ability of more skilled writers (Graham, Harris, & Macarthur, 2006). As clearly demonstrated in the literature, self-regulation is critical component of the writing process and provides a more complete view of writing development when included.

Self-regulation has rapidly been gaining interest from researchers in a number of domains over the past few decades. This increased interest has also led to a number of semantic and theoretical debates in the literature. A precise definition for self-regulation, as well as agreement on the precise array of skills that make-up this construct, have been controversial within and across fields. This is especially true when considering self-regulation as it relates to academic performance. Because of this, in the following

sections, we will refer to the precise components of self-regulation our assessments and surveys aim to measure directly (behavioral regulation and social skills), instead of using the blanket term of self-regulation. This allows the relation between writing and the specific skills being measured to be highlighted and discussed more precisely.

Sex

Sex differences have been of consistent interest in writing research, with inconsistent results. To further complicate this relation, the specific association between sex and writing outcome appears to be at least partly moderated by age. In a study focused on student self-efficacy across grades 3rd to 5th, it was found that girls actually performed better on writing tasks, but there was no significant difference in self-efficacy between genders (Pajares, Miller, & Johnson, 1999). Essentially, girls out-performed boys on the writing task but both sexes felt equally confident in their writing abilities. For both sexes, self-efficacy did mediate the relationship between aptitude and performance. In contrast to these results, the relationship between self-efficacy and gender in high school students found the reverse; there was no aptitude difference between boys and girls in 9th grade but girls reported lower self-efficacy (Pajares & Johnson, 1996).

The connection between sex and academic achievement is further complicated by the gender stereotypes attached to specific skills. To separate actual gender differences from the bias students may hold for certain skills Pajares and Valiante (2001) measured both the actual sex and the gender-stereotypic beliefs of middle school students. They measured gender orientation by asking students to report how strongly they identified with characteristics stereotypically associated with either males or females in American society. They found that it was not the actual sex of a student that predicted outcomes.

Instead, a feminine orientation was most adaptive for writing tasks. Higher femininity scores correlated with all motivational variables except apprehension. The only variable that favored boys was performance-approach goals. Overall, it seems that many of the sex discrepancies that have been found may actually be a function of gender-orientation, not sex.

In a study carried out to explore the relation between a students' interest and knowledge of a topic and writing ability gender differences were also explored (Benton et al., 1995). Students in 9th grade as well as college undergraduates were asked to write on a specific topic (baseball) as well as answer questions on this topic. In was found that, overall, females wrote more systematically and replicated previous findings that females make fewer grammatical mistakes (Maccoby & Jacklin, 1974). They also found a gender by interest interaction that favored male writers when their indicated interest in baseball was low. This difference did not exist for students with high levels of interest in the topic, regardless of gender.

Socio-Economic Status (SES)

As with many academic skills, a correlation between SES and writing performance has been found. At a very early age, knowledge of print and text concepts appears to be related to text exposure. The importance of text exposure for reading and writing is further supported by a study centered on home literacy and text availability. Using in-home observations focused on interactions involving print, a great deal of variation in the amounts and types of text children from lower income families are exposed to was found (Purcell-Gates, 1996). Children had a poorer understanding of text and its features in families where text was rarely present. These children also had a less

developed understanding of the function and purpose of writing. The difference between these families is a potential source of variability in writing outcomes as it relates to text exposure. Gaining a better understanding of how text exposure and writing ability are related may help improve a student's writing.

Age

As students progress through school they are expected to gain competence in what they are being taught, utilize more advanced strategies, and producer higher quality work. Relative to the year-to-year growth seen in reading or math skills (Jimerson, Egeland, & Teo, 1999; Verhoeven & Leeuwe, 2008), knowledge about writing, text structure, and genres seems to increase more slowly (Donovan, 2001). Many features of the writing process are limited in young children, for example taking notes or planning do not become common until at least fourth grade (Bereiter & Scardamalia, 1987; Boscolo, 1990).

In a study focused on student attitudes towards and knowledge of writing, only minor differences were found between the responses of younger and older students in grades 4, 5, 7, and 8 (Graham, Schwartz, & MacArthur, 1993), although it should be noted that age-related differences were not the main focus of this study. In a developmental study focused on compositional differences across genres (stories, science reports, and poems) students from kindergarten through grade 2, only three significant main effects were found for grade (Kamberelis, 1999). Results like these reveal the lack of variability in genre understanding across grades. More surprising, a study on academic language and writing in a middle school sample reported that writing completed by sixth

graders scored higher, on average, than that of seventh or eighth grade students (Dobbs, 2013).

Not surprisingly, more distal characteristics like self-efficacy also have a variable influence on writing depending on age. Across all ages, students with the highest grades on assignments also report the highest self-efficacy, but it is difficult to determine direction or causality in this relationship (Prat-Sala & Redford, 2012). Due to both developmental and personal-experience factors, self-efficacy is typically higher for younger students (Pajares et al., 1999). Younger students also reported less apprehension when completing writing tasks. Grade and age will both be used in this study as dictated by the study aims. In school settings, grade is considered the most accurate reflection of the number of years a student has been in school and therefore the potential length of time they have been receiving some form of writing instruction. However age allows for more measurement precision, as it is not categorical.

Classroom Instruction

The lack of instructional emphasis on writing within the classroom has been highlighted in previous research. Whereas basic writing skills like grammar, handwriting, and spelling are often taught, teachers report teaching complex writing strategies much less frequently (Graham et al., 2003). In addition, teachers report teaching writing process skills including text organization, planning, and revising only 1.5 hours per week. Graham and colleagues (2003) also found that the amounts of time students are given for writing is highly variable across classrooms. This variability may reflect the current lack of clear developmental milestones, which would inform universal guidelines and expectations for writing instruction. However, studies have shown that more time spent

by students on classroom writing activities predicted better writing outcomes (Braaksma, Rijlaarsdam, & Bergh, 2004; Cutler & Graham, 2008).

With the level of inconsistency found across writing instruction, it is not surprising that there is little consistence among classroom writing activities. In a study examining teachers in grades 1–3, 96% of the teachers focused on story writing activities, 59% focused on writing to inform, and 36% engaged in persuasive writing activities (Cutler & Graham, 2008). This snapshot of elementary school classrooms demonstrates the discrepancy between the CCSS guidelines and the writing activity currently found in classrooms.

CHAPTER 2. METHODOLOGY

Study Aims & Hypotheses

Three research questions were developed to investigate how genre-specific writing differs between grades (2-3) and genres (informative and opinion). These questions were also developed to shed light on how related variables may, or may not, have a differential impact on writing performance.

Research Question 1

- Within each grade level and genre, which variables (reading comprehension, vocabulary, behavioral regulation/social skills) predict students' genre-based writing score?
    a. Which variables should be controlled for in this model (sex, SES, age, writing fluency or length of essay)?

Research Question 2

- Are there reciprocal effects? Within each grade level and genre, does a students' genre-based writing score significantly predict scores on the other variables of interest (reading comprehension, vocabulary, behavioral regulation/social skills)?
    a. Which variables need to be controlled for in these models (sex, SES, grade, writing fluency or length of essay)?

Research Question 3

- Are there distinct writing profiles of students in second and third grade?
    a. Is profile membership predicted by sex, race, or SES?

Hypothesis

It is likely that students will write longer, higher quality essays, regardless of genre, as they develop and gain higher levels of academic competence. That being said, gains are expected to be small (Dobbs, 2013; Donovan, 2001; Kamberelis, 1999). Some studies have found that younger students may compose significantly shorter and less complex writing samples, regardless of genre (Olinghouse & Graham, 2009; Walberg & Ethington, 1991). Determining the relation between the selected predictor variables and the genre-based writing score will aid in predicting a student's growth in writing and provide insight into which abilities have the greatest influence on writing outcomes. Information on which factors are associated with better writing outcomes may lead to more informed teachers, better research-based curriculum, and in turn, a greater number of children able to meet the standards outlined by the CCSS. Differences between the grades, or lack there of, will also highlight areas where the standards are developmentally appropriate.

Research Question 1

Specifically related to research question 1, the hypothesis is that reading comprehension and self-regulation will predict genre-based writing score in both grades to approximately the same degree but vocabulary skills will be a stronger predictor for informative writing, which often requires use of more specific terminology. It is also hypothesized that essay length, and writing fluency will be necessary as control variables in the models. Finally, some research seems to indicate that opinion writing is more difficult than informative writing (Applebee, Longer, Mullis, Latham, & Gentile, 1994), so children may perform better on the informative essay task. However, the overall difficulty of writing in either genre may confounded by instruction in this study.

Research Question 2

In regards to research question 2, genre-based writing scores are hypothesized to most strongly predict reading comprehension and behavioral regulation. This hypothesized connection between reading comprehension the understanding of text generation and genres is supported by the studies on text exposure and reading tasks (Berninger et al., 2002; Purcell-Gates, 1996; Olinghouse, 2008). Behavioral regulation is also predicted to be strongly related to the genre-based writing scores because the demands on attention and working memory are likely high, especially for young students, when completing a timed writing task.

Research Question 3

Latent profile analysis is useful when research questions are focused on relationships among people; the goal of these analyses is to divide people into unique groups based on their outcomes across a specific set of variables. The use of latent profile analysis will allow us to determine whether students display specific-skill distributions that can be used to categorize them into groups. Combining all of the available assessment information for each student will allow each participant to be characterized within a specific, unique *profile*. Each profile classification is based on the full constellation of student variables. This method of analysis is useful because it provides a person-centered approach to identifying and understanding potential subgroups within a specific population.

Specifically, latent profile analysis is a type of growth mixture modeling where the "variance and covariance for the growth factor within each class are assumed to be fixed at zero" (Jung & Wickrama, 2008). This allows subgroups to be identified within

the sample of interest, thus creating profiles that share specific characteristics. The end result is a number of profiles where the members of each are more similar to one another than they are to people in the other groups (Jung & Wickrama, 2008). The exact number of groups, or profiles, is determined by overall model fit and theoretical relevance.

In theory, once specific profiles have been identified, interventions and supports can be put into place to provide specialized, targeted assistance to students who need it most. In future research profile membership may also be used to predict potential future outcomes, like adult writing ability. The goal of this study is to take a sample of students in the early elementary grades and utilize latent profile analysis to determine whether there are subgroups within this age range. This will provide insight into how students differ from one another once they have entered formal schooling.

Supported by the connection between reading and writing (NICHD & IRA, 2012), the hypothesis for research question 3 is that three profiles will be identified, with at least two profiles emphasizing reflecting the reading-writing connection. The first hypothesized profile would include children with above average reading and writing skills. Based on gender differences at this age, this profile may also include more female students. The second predicted profile, also accentuating the reading and writing connection, may consist of students struggling with both reading and writing tasks. In addition to the "reading-writing" profiles, it is hypothesized that there will be a third profile where students have average to above average reading skills but are struggling with writing. This third profile is likely because expressive and generative language (e.g. writing) tasks are more difficult than receptive language (e.g. reading) tasks (Bereiter & Scardamalia, 1987; Hayes & Olinghouse, 2015). Especially in these younger grades,

there maybe be students who have mastered basic reading comprehension but are still struggling on writing tasks.

Much of the research done utilizing latent profile analysis has focused on preschool-age children and has been centered on school readiness, child behavior, and social skills outcomes. In addition, such studies consistently highlighted three main constructs of interest. The first is an academic or cognitive variable. Measures for this variable have included academic assessments or IQ tests and provide information on how well a child is performing on tasks related directly to the skills needed for success in the classroom (Pentimonti, Justice, & Kaderavek, 2014). The second area of focus has been in social, behavioral or personality factors. The third and final area of focus has been on environmental factor such as parental education level, SES, or household income (Hill, Degnan, Calkins, & Keane, 2006; Ladd, Birch, & Buhs, 1999; Pentimonti et al., 2014). Using assessment data to look at writing outcomes will be a valuable and relatively novel use of this statistical method.

Measures

A majority of the measures used in this study are well-established assessments, commonly used in education-based research and were focused on literacy skills (reading and vocabulary), writing, and components of self-regulation. A portion of these assessments measure constructs that have been shown to influence writing outcomes and will serve as control variables in this study. All student measures were given in the fall portion of the school year (August-October). Teacher surveys were given during the late-winter portion of the school year, primarily March.

Literacy Assessments

Reading comprehension was assessed using the *Gates-MacGinitie Reading Tests (GMRT).* This is a group-administered assessment that requires students to utilize comprehension skills to answer questions after viewing a series of pictures or reading text (MacGinitie, MacGinitie, Maria, & Dreyer, 2006). This test is useful in that it can be administered quickly within a classroom and provides an accurate reading measure at both grades. Reliability values are presented below. There are two forms of the GMRT with very similar reliability information. The values presented here are for Form S. All participants in this sample completed Form S only.

The Level 2 form (designed for use in second grade) has three sub-tests: word decoding, word knowledge, and comprehension. The reliability of the total score based on all three sub-tests is .92 (alpha). The comprehension sub-test has an alpha value of .92 (MacGinitie, MacGinitie, Maria, & Dreyer, 2006). The Level 3 form (designed for use in third grade) has two sub-tests: vocabulary and comprehension. The reliability of the total score based on both sub-tests is .96 and the comprehension sub-test reliability is .93.

The validity of the GMRT was established in multiple ways (MacGinitie, MacGinitie, Maria, & Dreyer, 2006). First, correlations between GMRT scores and scores on other reading measures was high. For grades 1-6 student grades were also highly correlated with GMRT scores. Such comparisons across similar assessments served to establish construct validity. Criterion (concurrent) validity was also established between the third and forth edition of the GMRT. For both Level 2 and 3 the correlation between the editions was .92.

Picture Vocabulary, a sub-test of the Woodcock-Johnson-III Tests of Achievement (WJ-III; Woodcock, McGrew, & Mather, 2001) was collected as a measure of expressive vocabulary. This test requires students to correctly identify illustrations using specified terminology. The correct name for each item is specified in the assessment but students may be prompted for an additional response if they provide a term that is close to the permitted answer. The responses must be in English. The median reliability of this sub-test was .77 for the age range 7 to 19 years old. For age 9, near the mean of this study sample, the reliability was .77. The test-retest reliability was .75 for children ages 7 to 11 years of age.

Behavioral Regulation and Social Skills

Behavioral regulation was directly measured using the *Head-Toes-Knees-Shoulders* (HTKS) task (Ponitz et al., 2008). This task requires students to follow a series of directions that become increasingly complex. Behavioral inhibition is required for this task because the student must do the opposite from what the directions state. For example, the researcher may say, "touch your head" when the student should respond by touching their toes. The HTKS test is commonly used to measure self-regulation and has shown good reliability, alpha of .87 for girls and .88 for boys (Ponitz et al., 2008).

The HTKS has been shown to tap three specific areas of behavioral regulation: inhibitory control, working memory, and attention (Ponitz et al., 2008; McClelland et al., 2007). Studies completed to validate this measure compared parent and teacher reports on behavioral regulation to scores on the HTKS for student ages 36—78 months (Ponitz et al., 2008), and revealed significant, positive correlations (.14—.61) between the scores (Ponitz et al., 2009; Schmitt, Pratt, & McClelland, 2014). While some of the correlations

between parent and teacher reports were not as high as expected, many of the surveys used included questions about emotional regulation and social competence, which are not assessed by the HTKS. This assessments is also particularly appropriate for this study due to it's previously established relation with other academic outcomes (McClelland et al., 2007; Morrison et al., 2010; Ponitz et al., 2008). McClelland et al. (2007) found significant positive correlations between and HTKS and preschool spring outcomes in literacy (.23), vocabulary (.32), and math (.39).

The *Social Skills Improvement System* (SSIS) rating scale is a teacher-report measure of children's social skills and behavior. This measure includes a number of sub-scales including social skills, problem behaviors, and academic competence. The *social skills sub-scale* was utilized for this study. This scale captures seven specific areas: communication, cooperation, assertion, responsibility, empathy, engagement, and self-control. The purpose of this measure is to capture some of the emotional and social components of self-regulation not assessed by the HTKS. This measure can be used for students as young as three and is completed by the primary classroom teacher. The questions are based on behaviors observed in the classroom. Reliability on the teacher form, social skills sub-scale has an alpha of .97 for students 5 to 12 years old. The test-retest coefficient for the social skills sub-scale is .82 for students ages 3 to 18 yeas of age.

Teacher Measures

Relating classroom instruction to writing outcomes is not the focus of this study and will not be quantitatively measured in great detail. To provide insight into the possible impact of instruction teachers were given a planning and background survey about their teaching experience and classroom norms. Previous versions of this survey

have been used in a number of studies focused on elementary teachers literacy instruction (Connor et al., 2009, 2011, 2013; Connor, Morrison, Fishman, Schatschneider, & Underwood, 2007).

Teachers were also given an survey specifically related to the types and amounts of writing instruction they are providing in their classrooms (see Appendix A), adapted from Cutler & Graham (2008). Information about the classroom curriculum and instructional content were also collected along with video observations. This information is presented in a descriptive manner to provide a contextual reference for the results.

Writing Measures

Judging the quality of writing is a controversial topic. There are various techniques and criterion that can be used to quantify writing ability. There are also additional concerns related to inter-rater reliability across genres and the consistency of writers across prompts (Nystrand, Cohen, & Dowling, 1993; Rijaarsdam et al., 2010).

A WJ-III subtest was used to assess writing fluency. The *Handwriting Fluency* assessment measures a student's ability to quickly write complete sentences that are grammatically correct. The median reliability of this sub-test was .86 for the age range 7 to 19 years old. For age 9, near the mean of this study sample, the reliability was .77. The test-retest reliability was .75 for children ages 7 to 11 years of age.

During the assessment the student was presented with a small image along with three specific words as a prompt. The student is asked to compose a sentence that relates to the image using the words provided. Students have seven minutes to generate as many sentences as possible. All three words must be used in every sentence generated and cannot be altered in anyway. Spelling is not considered in the scoring.

Students also responded to two *writing prompts* during the early portion of the school year (see Appendix for directions and prompts). The prompts were designed to elicit responses in the specific genres of interest. The opinion prompt was given to 394 students and the informative/explanatory prompt was given to 393 students. In total this equated to 419 students who wrote at least one essay. Students responded to one prompt per day. The second prompt was spaced out as much as possible (from 2-3 days up to a week) to avoid burnout. The prompt order was be counter-balanced across classrooms to avoid confounding the prompts with assessment occasion. When tested, prompt order did not significantly predict outcomes. The prompts themselves were carefully composed to appeal to all students across the elementary school grades (adapted from Graham et al., 2005). The writing prompts were also designed to revolve around experiences familiar to elementary-age students and require minimal content knowledge about specific topics. The aim was to reduce the amount of variability in responses due to topic-specific knowledge.

Students were given a brief set of directions about the writing task and then heard the prompt. They were given 30 minutes to complete their composition. While few students used the entire amount of time allotted, allowing up to 30 minutes provided most students with the opportunity to do their best work. Following the writing prompt task, teachers asked students to begin working on an assignment comparable to essay writing. This was done to discourage students from rushing through their compositions in order to move onto a different activity.

The writing samples were scored using the *genre-based scoring rubric* (GBSR). These rubrics were generated using genre-elements and scoring structures from

previously developed writing rubrics. Specifically, rubrics that had been used in prior studies or as part of state standards were selected. The characteristics from previously developed scoring systems were adapted to fit the goals and desired outcome of this study. The genre elements list was be generated from traits mentioned in previous literature (Donovan, 2001; Graham et al., 2005; Harris et al., 2006; McConnell, Little, & Martin, 2015) along with the requirements listed in the CCSS. Rubrics developed in conjunction with the common core were also referenced to verify critical genre elements are included, as well as define scoring breakdowns and quality markers (PARCC Scoring Rubric, 2015; Smarter Balanced Assessment Consortium Rubric, 2014).

An equal number of specific and unique elements were identified for each genre. Students received credit for the genre-defining elements they include in their composition on a scale from 0 (not present) to 3 (present and clear). The genre elements scored within an opinion essay included the introduction, non-functional text, reasons, elaborations, conclusions, persuasive or emotional language, addressing opposing viewpoints, and use of linking words. The informative essay rubric score was based on the inclusion of an introduction, non-functional text, main idea(s), examples/details, final summary, technical vocabulary, comparing or contrasting, and use of linking words. The score for each of the elements was summed to create a total score for each essay.

This measures focus was entirely on the genre-specific writing elements and their characteristics. Thus, the score served as a genre-based measure of elements, not holistic writing quality. Essays were typed and spelling/grammar was corrected prior to scoring. Raters scored all essays of a particular genre at a time to reduce confusion. The g*enre-*

based scoring rubric guidelines for each genre can be found in Appendix C at the end of this document.

Research assistances were trained on the scoring rubric using element examples to provide reference points for each potential score. Practices essays were scored and scoring discrepancies were discussed. Once the coders reach substantial reliability, kappa > .61, (Landis & Koch, 1977) they began to score the student essays. Reliability was calculated at the genre-element level, using 10% of the total sample and reliability was .64 (kappa). Due to the great diversity of essay structures written by students at this age, the reliability value of the practice essays fluctuated greatly depending on the specific sample selected, with kappa ranging from .55 up to .93. Because of this, all essays with difficult or confusing elements were discussed by the raters and given a score after a consensus was reached. If certain odd or unexpected characteristics appeared repeatedly within the essays specific rules were added to the rubric guide to aid in the scoring. The scorers were blind to the age, grade, sex, school, and teacher of the students who wrote the essays. In addition, the raters were not exposed to the student's handwriting or uncorrected essay prior to scoring. This was intended to reduce any potential bias towards the student writing samples.

The essay length, *word count*, was also calculated and used as an additional measure related to the writing samples. The length of the essays was measured using a simple computer-calculated word count. The words were counted using the word count feature available in the Microsoft Excel software. Counting the words electronically ensured accuracy. The essays length was calculated on the uncorrected essays, which

were transcribed exactly as written, prior to correcting spelling, grammar, or syntax. The total number of words calculated by Excel served as the essay length score.

CHAPTER 3. DATA ANALYSIS & RESULTS

Descriptives

Prior to discussing the quantitative results, the qualitative and descriptive data collected on the schools (N = 2) and teachers (N = 18) who participated in this study are presented to give context to the following analyses. Both schools were located in south-central Arizona. School accountability information was available for both the overarching district and the specific schools participating in the study (both schools participating in this study are located within the same school district). Based on the state rating system, the school district received a "B" grade and the participating schools received a "B" and "C" grade, respectively. This information was publicly available and was calculated using the statewide tests (AIMS) as an indicator of student growth. Additional factors such as graduation rate, dropout rate, and English language learner reclassification rate were also considered. A "B" grade is considered above average, and a "C" grade is described as average performance for a school.

The curriculum used by the schools was based on the standards set by the state department of education at the district level. In finer detail, the school-level curriculum used for literacy and language arts at both schools was Houghton Mifflin Reading, published in 2006. The curriculum was structured as a series of themes that progressed across the school year. Each book included one theme that contained multiple units focused on various topics (poems, fables, etc.) and provided literary texts and lesson plan ideas for classroom instruction. All of the individual activities included in the curriculum were indexed by expert teachers familiar with the curriculum for a related study

involving an online software aimed at improving teacher instruction. The indexed activities were used to complete the lesson planning feature provided by the software (for more information see Connor et al., 2013).

A search through the second and third grade indexed activities revealed relatively few writing activities. The writing activities that were present in the curriculum spanned a range of difficulties, in grade equivalents, from approximately 2.11 to 3.92 by the end of the third grade sequence. The grade equivalents were determined in part by the scope and sequence of the curriculum and the organization of the activities. In addition, the expert teachers responsible for the indexing were trained on how to determine the difficulty of the activities as they indexed the material. In combination, curriculum information and teaching expertise was used to determine the grade equivalent of each activity.

Some of the most common writing activities repeatedly found in the curriculum included daily writing prompts and grammar lessons, seen in both the second and third grade curriculums. Lessons related to fables, poems, journaling, news articles, opinion writing, and comparing/contrasting were also present across second and third grade. Third grade activities included a heighted focus on prewriting, drafting, proofreading, and revising lessons.

A detailed list of writing activities in the curriculum in available in Appendix D. It is important to note that this list does not indicate the amount or type of activity that was typically used during classroom writing instruction. However, it does serve as a comprehensive list of the activities that were easily available for all teachers. In addition, while activities in the curriculum have been labeled ‘writing activities’ they may not actually reflect extended opportunities for students to actually practice writing. For

example, one of the most common activities in the second grade curriculum was 'Daily Routine: Daily Writing Prompt' that encouraged teachers to have children revise past work they had written or respond to a prompt provided in the activity. In contrast, 'Improving Writing: Dates and Time-Order Words' was also identified as a writing activity but focused mainly on teacher-lead instruction followed by a practice activity where the students were asked to identify time order words in sample paragraphs. This writing activity did not require short answer responses and no extended writing practice was required.

There were also a number of activities that explicitly focused on the genres of interest within this study or specific genre elements that were included on the GBSRs. In the second grade curriculum there were three activities explicitly targeting opinion writing and seven focused on writing to explain or inform. In third grade there were nine activities centered around opinion or persuasion and ten on writing to inform or describe.

However, teachers were not restricted to the adopted curriculum. School displays indicated they designed their own seasonal and topical writing assignments. In addition, on multiple teacher surveys that allowed for additional comments, as well as through personal interactions, teachers from both schools mentioned having access to Lucy Calkins Writers Workshop materials but not having the time to implement these lessons in their classrooms. The teachers also expressed frustration with having instructional materials available to them that they felt they did not have time to utilize during the school year.

Across both schools, teachers focused on literacy instruction in the morning and utilized a mixture of whole-class, small-group, and 'walk-to-read' instruction (students

rotated classrooms to join students of similar reading abilities and received instruction based on their reading level) during this time. The weekly schedule included a minimum of an hour for literacy daily, with some days extending this time to two hours. The exact time and structure of literacy instruction varied greatly due to typical school events such as assemblies, award ceremonies, and state or district testing as well as early-release days. Early-release days existed at both school and served as a shorter school day, with children departing campus approximately two hours earlier than a typical day. These days provided teachers with time for planning and meeting during the school hours.

Teachers were 89% female, 83% white, and 17% Hispanic. At the minimum, all teachers had a bachelor's degree, with 28% also holding higher-level, education-related degrees. Results from the teacher background and writing knowledge surveys provided insight into the length and type of literacy and writing instruction students received. The survey results are presented in Table 1 and Table 2. Teachers reported having a literacy block (daily time set aside solely for literacy instruction) that was planned for 45 up to 120 minutes. They also reported that their students spent an average of 115.36 minutes per week writing, but there was a vast range reported overall. Writing-specific data is presented on teachers in grades 1 through 3 to reflect school-level writing practices.

Table 1
Descriptives from Teacher Surveys

	N	Min.	Max.	Mean	St. Dev.
Background Survey					
Total Years Teaching	20	1	36	15.25	11.30
Length of Literacy Block (min. per day)	20	45	120	86.25	15.29
Ave. Student Writing Time per Week (min.)	14	30	300	115.36	84.23
Writing Survey					
Quality of Writing Preparation[+]	11	1	4	2.82	0.87
I Like to Teach Writing*	15	3	6	4.46	0.92
Reading & Writing Skills Support Each Other*	15	5	6	5.87	0.35
I Like to Write*	15	3	6	4.80	1.01
I am Effective at Teaching Writing*	15	3	6	4.26	0.88

Note. Writing information was only collected in grades 1-3. All survey responses received are displayed. [+]Scale ranged from 1 (inadequate) to 5 (exceptional). *Scale ranged from 1 (strongly disagree) to 6 (strongly agree).

Table 2
Classroom Writing Activities

	N	% of classrooms where activity was completed in the past quarter
Stories	10	60
Personal Narratives	10	80
Journal Writing	10	90
Poems	10	30
Letters	10	40
Writing to Persuade	10	60
Writing to Inform	10	90

Note. All responses received are displayed above. Percentages were calculated after excluding missing data. Writing information was only collected in grades 1-3.

Student demographic information, along with descriptive statistics for all of the assessments, was also collected. The student participants (N=413), within 18 classrooms, were 53% male and were divided between second and third grade equally (50%), with a slight majority attending one of the two schools (52%). A vast majority of the student

body indicated Hispanic (73%) as their ethnicity, followed by 7.3% black, 5.6% white, 0.7% Asian and 13.4% of the students identified as mixed-race/multiracial/unspecified. When these data were collected (fall of the school year) the average age of students was 8.13 years old. The minimum age was 6.88 and maximum was 10.03 years of age. At both schools, 73% of the students were approved for the free and reduced lunch program. Student-level data on receipt of free and reduced lunch program was not available so it was not used as a control variable for any of the following analysis.

Descriptive information on all of the assessments is provided in Table 3. A subset of these measures were used in the analyses to address the research questions. Standard scores were used for all analyses when available. A number of the measures had significant low to moderate correlations to each other (see Table 4), with the correlations between the reading comprehension measure and GBSR outcomes (.374 and .412), being in the moderate range. Correlations were also moderate between writing fluency and reading comprehension (.410) and the length of the essays written across the two genres (.556).

To provide additional context for interpreting the inferential analysis, as well as identify general characteristics of this specific sample, the national means used to norm the standardized test are provided here. For the GMRT Comprehension Sub-test, the mean standard score for the normative sample in the fall portion of the school year was 423 in grade 2 and 461 in grade 3. In comparison, the mean standard score of students in grades 2 and 3 of the study sample was 390 and 424 respectively. These values are clearly below the national averages. The WJ-III assessments also have national norms, reported as *W* scores determined across a range of ages. The national norms for the WJ-

III Picture Vocabulary test range from 484.99-502.81 for students ages 7 to 10 years old. The sample of students in this study ranged in age from 6.88 to 10.03 years old, with WJ-III Picture Vocabulary *W* score means of 473.75 in grade 2 and 479.42 in grade 3. Similarly, the national norm *W* scores for the WJ-III Writing Fluency test were 478.52-501.99 for students ages 7 to 10 years old. In comparison, *W* scores means were 468.29 and 481.08 for grades 2 and 3 in the study sample. Other assessments used in this study did not provide national norms. The disparity between the national averages and the means found in the sample obtained for this study are important to bare-in-mind when interpreting the following analyses.

Although presented in the descriptives table, the SSIS Social Skills measure was not utilized in further statistical analyses. This was due to a number of reasons. First, the SSIS survey was completed for every student by his or her teacher. Only a subset of participating teachers had returned the surveys for their students at the time of this study. Further complicating the situations was the fact that surveys were not returned at random but were typically completed for an entire class or none of the students in a class. This created a unique sample of classrooms with and without SSIS data. It is likely that the teachers willing to fill out the surveys shared other characteristics (beyond just providing SSIS information), confounding any information obtained with the SSIS scores. Because the missing information could not be generalized across classrooms or students and comparatively few surveys had been returned overall, it was determined that this variable would not be used in any further analyses for this study.

Table 3
Student Descriptives

	N	Min.	Max.	Mean	St. Dev.
Predictors					
WJ-III Picture Vocabulary	407	58	123	92.20	9.28
GMRT Comprehension Sub-test	405	276	510	407.93	36.94
HTKS Total Score	406	0	60	46.21	10.83
SSIS Social Skills	184	52	130	97.04	20.16
GBSR Opinion Essay Total Score	393	0	16	4.29	4.17
GBSR Informative Essay Total Score	392	0	20	10.07	4.00
Control Variables					
WJ-III Writing Fluency	392	40	133	98.36	12.81
Length of Opinion Essay (words)	393	5	308	60.01	44.31
Length of Informative Essay (words)	392	4	472	74.62	53.19

Note. WJ-III, GMRT, and SSIS scores are standard scores, other assessment values are total scores. WJ-III = Woodcock-Johnson III; Gates = Gates-MacGinitie Reading Tests; HTKS = Head-Toes-Knees-Shoulders Task; SSIS = Social Skills Improvement System; GBSR = Genre-based Scoring Rubric.

Table 4

Correlations between Literacy and Behavioral Measures

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. WJ-III Picture Vocabulary	-								
2. GMRT Reading Comp. Sub-test	.311**	-							
3. HTKS Total Score	.263**	.318**	-						
4. SSIS Social Skills	-.023	.134	.160*	-					
5. GBSR Opinion Total Score	.270**	.374**	.203**	.042	-				
6. GBSR Informative Total Score	.247**	.412**	.275**	.177*	.335**	-			
7. WJ-III Writing Fluency	.343**	.410**	.163**	.246**	.238**	.283**	-		
8. Length of Opinion Essay	.008	.193**	.119*	.072	.145**	.197**	.141**	-	
9. Length of Informative Essay	.023	.214**	.113*	.058	.146**	.283**	.168**	.556**	-

Note. * = $p < .05$, ** = $p < .01$. WJ-III = Woodcock-Johnson III; Gates = Gates-MacGinitie Reading Tests; HTKS = Head-Toes-Knees-Shoulders Task; SSIS = Social Skills Improvement System; GBSR = Genre-based Scoring Rubric.

Research Question 1

Hierarchical Linear Modeling (HLM; Raudenbush & Bryk, 2002) was used to answer the first research question concerning which literacy and behavioral regulation variables predict genre-based writing outcomes. Systematic model building was utilized to answer this question. First, unconditional models were run for both the opinion essay and informative essay outcomes, the ICCs were .05 and .10 respectively. Thus, depending on the outcome of interest, between 5 and 10% of the variance can be accounted for at the classroom level. These values were also high enough to support the use of HLM to account for the nested nature of the data. A similar 3-level model was run to account for the additional nesting of classrooms within schools but the model did not converge, revealing that the variability between schools was minimal and did not need to be accounted for in further analyses. Following the unconditional model, a full model including all predictors of interest (HTKS, GMRT comprehension sub-test, and WJ-III picture vocabulary) was fit. Predictors were grand mean centered for all analysis. The opinion essay score on the GBSR was significantly predicted by reading comprehension (.03, $p = < .0001$) and vocabulary (.07, $p < .01$), but not behavioral regulation. This model explained 12% of the variance, calculated using pseudo r^2. Two predictor variables significantly predicted the informative essay score, reading comprehension (.04, $p < .0001$), and behavioral regulation (.06, $p < .01$). This model explained 14% of the variance (pseudo r^2). Because all three predictors were significant for at least one of the writing outcomes they were all included in the final model.

Next, control variables were added to the models. Grade did not significantly influence the GBSR total score and was therefore removed from the models and analyses

were run with all students together. Age was also tested as a control variable, which revealed that the variance attributed to age was accounted for by including the random effect of classroom. Thus, age was also dropped as a control variable. The remaining control variables included sex, ethnicity, WJ-III writing fluency, and essay total word count. Control variables were also grand mean centered with the exception of sex, centered at female, and ethnicity. For analyses, ethnicity was recoded Hispanic or non-Hispanic, due to the vast majority of the sample identified as Hispanic and the relatively large number of student labeled mixed race or a non-specific ethnicity.

The complete results from the final models for the opinion and informative essay can be found in Table 5. This final model explained 12% of the variance for the opinion essays score and 23% of the variance for the informative essay. Comprehension remained a significant predictor in the final model for both essay genres while vocabulary remained significant for the opinion essay score and behavioral regulation significantly predicted the informative essay score. Sex was the only significant control variable for the opinion essay, with females performing better then males. Both the informative essay word count and writing fluency were significant control variables for predicting the informative essay score.

Table 5
Predicting Genre-based Writing Scores

	Estimate	*SE*	*p*-value
Opinion Essay			
Fixed Effects:			
Intercept	4.22*	0.22	<.0001
WJ-III Picture Vocabulary	0.07*	0.03	0.004
GMRT Comprehension Sub-test	0.03*	0.01	<.0001
HTKS Total Score	0.02	0.02	0.293
Female	0.88*	0.40	0.030
Hispanic	-0.19	0.46	0.674
WJ-III Writing Fluency	0.02	0.02	0.362
Length of Opinion Essay (words)	0.01	0.00	0.174
Random Effects:			
Intercept (Teacher)	0.167	0.32	0.302
Residual	14.49*	1.10	<.0001
Informative Essay			
Fixed Effects:			
Intercept	10.18*	0.19	<.0001
WJ-III Picture Vocabulary	0.03	0.02	0.133
GMRT Comprehension Sub-test	0.02*	0.01	<.0001
HTKS Total Score	0.04*	0.02	0.013
Female	0.33	0.36	0.357
Hispanic	0.27	0.40	0.495
WJ-III Writing Fluency	0.03	0.02	0.068
Length of Informative Essay (words)	0.02*	0.00	<.0001
Random Effects:			
Intercept (Teacher)	0.110	0.24	0.323
Residual	11.15*	0.85	<.0001

Note. Calculated using WJ-III and GMRT standard scores, total scores for all other assessment values. WJ-III = Woodcock-Johnson III; Gates = Gates-MacGinitie Reading Tests; HTKS = Head-Toes-Knees-Shoulders Task; GBSR = Genre-based Scoring Rubric. Outcome measure is total score on Genre-based Scoring Rubric, unique to each essay genre.

Research Question 2

In a similar fashion, HLM (Raudenbush & Bryk, 2002) was used to answer the second research question related to potential reciprocal effects; can literacy and behavioral regulation outcomes be predicted by the genre-based writing scores?

Unconditional models were run with behavioral regulation, comprehension, and vocabulary as the outcome variable. The ICCs revealed that the nested nature of the data (413 students within 18 classrooms) accounted for 2%, 25%, and 16% of the variance for behavioral regulation, comprehension, and vocabulary respectively.

Model building followed the same pattern as described above. Grade was again found to be non-significant as a control variable and was thus removed from the model, and all students were analyzed together. First the predictor variables, the opinion and information essays scores, were added to the model. Then the control variables were added (opinion essay word count, information essay word count, sex, ethnicity, and writing fluency). The final models for all three outcome variables (behavioral regulation, comprehension, and vocabulary) are shown in Table 6, Table 7, and Table 8. Reciprocal-type effects do appear to be present in all cases. The opinion essay score significantly predicted all three outcomes of interest and the informative essay score predicted behavioral regulation and comprehension only. The final behavioral regulation model accounted for 16% of the variance, the comprehension final model for 28%, and the vocabulary model for 21% of the variance (using pseudo r^2).

Table 6
Using the GBSR to Predict Behavioral Regulation

	Estimate	*SE*	*p*-value
Behavioral Regulation			
Fixed Effects:			
Intercept	46.64*	0.53	<.0001
GBSR Opinion Essay Total Score	0.26*	0.13	0.052
GBSR Informative Essay Total Score	0.48*	0.15	0.002
Length of Opinion Essay	0.01	0.01	0.604
Length of Informational Essay	0.00	0.01	0.826
Female	-1.08	1.09	0.325
Hispanic	-1.26	1.19	0.290
WJ-III Writing Fluency	0.06	0.04	0.135
Random Effects:			
Intercept (Teacher)	-	-	-
Residual	104.14*	7.74	<.0001

Note. Calculated using WJ-III and GMRT standard scores, total scores for all other assessment values. WJ-III = Woodcock-Johnson III; Gates = Gates-MacGinitie Reading Tests; HTKS = Head-Toes-Knees-Shoulders Task; GBSR = Genre-based Scoring Rubric.

Table 7
Using the GBSR to Predict Reading Comprehension

	Estimate	*SE*	*p*-value
Reading Comprehension			
Fixed Effects:			
Intercept	410.05*	3.73	<.0001
GBSR Opinion Essay Total Score	1.41*	0.39	0.000
GBSR Informative Essay Total Score	1.52*	0.45	0.001
Length of Opinion Essay	0.00	0.45	0.971
Length of Informational Essay	0.01	0.04	0.831
Female	-3.77	3.14	0.230
Hispanic	0.48	3.46	0.890
WJ-III Writing Fluency	1.00*	0.13	<.0001
Random Effects:			
Intercept (Teacher)	197.92*	84.96	0.001
Residual	776.64*	60.49	<.0001

Note. Calculated using WJ-III and GMRT standard scores, total scores for all other assessment values. WJ-III = Woodcock-Johnson III; Gates = Gates-MacGinitie Reading Tests; HTKS = Head-Toes-Knees-Shoulders Task; GBSR = Genre-based Scoring Rubric.

Table 8
Using the GBSR to Predict Vocabulary

	Estimate	*SE*	*p*-value
Vocabulary			
Fixed Effects:			
Intercept	92.37*	0.89	<.0001
GBSR Opinion Essay Total Score	0.37*	0.11	0.007
GBSR Informative Essay Total Score	0.17	0.12	0.169
Length of Opinion Essay	-0.03*	0.01	0.017
Length of Informational Essay	0.00	0.01	0.693
Female	-0.27	0.86	0.755
Hispanic	-2.70*	0.94	0.005
WJ-III Writing Fluency	0.16*	0.03	<.0001
Random Effects:			
Intercept (Teacher)	10.76*	4.90	0.014
Residual	57.93*	12.86	<.0001

Note. Calculated using WJ-III and GMRT standard scores, total scores for all other assessment values. WJ-III = Woodcock-Johnson III; Gates = Gates-MacGinitie Reading Tests; HTKS = Head-Toes-Knees-Shoulders Task; GBSR = Genre-based Scoring Rubric.

Research Question 3

Latent profile analysis was used to answer research question three. The variables utilized in this analysis to determine potential profiles included the opinion GBRS score, informative GBRS score, behavioral regulation, reading comprehension, and vocabulary. First, analyses were run for one through six profile models. The results of these analyses are reported in Table 9. From the 1-profile model, the Bayesian information criterion (BIC) steadily decreased up through the 4-profile model (from 13,372 – 13,105), indicating incrementally improved model fit. The 5-profile model had a BIC essentially equal to the 4-profile model, but the 6-profile model was lower (13,063).

Entropy above .80 is considered to indicate that the groupings are distinct, the groups are well structured within the model, and can serve as another indicator for good overall model fit (Ram & Grimm, 2009). In these analyses the entropy value steadily

increased through the 4-profile model (from 0.734 to 0.895). The 5-profile model had a comparatively low entropy (.803) and the 6-profile models entropy was very similar to the 4-profile.

Finally, the Likelihood Ratio Tests (LRTs) were also considered with the fit statistics. These tests were used to determine whether increasing the number of profiles, within nested models, improved model fit significantly (Lo, Mendell, & Rubin, 2001). Three tests are commonly used for this task: the Vuong-Lo-Mendell-Rubin Test, the Lo-Mendell-Rubin Adjusted LRT Test, and the Parametric Bootstrapped LRT. While all of these tests have value, they are dependent on the shape of the distribution and the Lo-Mendell-Rubin Adjusted LRT Test and Parametric Bootstrapped LRT are expected to be the most accurate for the conditions present within this study, specifically the relatively small sample size (Nylund, Asparoutiov, & Muthen, 2007).

A combination of model fit statistics and the theoretical relevance of the groupings was used to determine the best fitting model. The models with five and six profiles generated less consistent improvements in fit statistics. The 5-profile model had a higher BIC and lower entropy compared to the 4-profile model, and the LRTs values remains similar. The 6-profile model showed improve BIC and entropy values compared to the 4-profile model and similar LRT values but the profiles began to loose theoretical relevance, with one profile comprised of only about 9 students and three of the six profiles containing very similar means across the assessments. After considering all analyses, the 4-profile model was considered the best model due to the combination of good model fit statistics, parsimony, and theoretical relevance (see Table 10 for details).

The latent class probabilities for this model were also high, with averages for most likely latent class membership ranging from 0.91 to 0.99.

Table 9

Latent Profile Analyses to Examine Classes of Behavior and Literacy

	1-Profile	2-Profile	3-Profile	4-Profile	5-Profile	6-Profile
Sample size						
$N_{p=1}$	372	232.42	12.04	163.16	11.31	8.93
$N_{p=2}$		139.58	233.23	12.00	90.70	147.58
$N_{p=3}$			126.73	142.27	141.88	22.07
$N_{p=4}$				54.57	78.46	82.67
$N_{p=5}$					49.65	88.13
$N_{p=6}$						22.62
Fit statistics						
BIC	13,372	13,240	13,138	13,105	13,107	13,063
Entropy	-	0.734	0.816	0.895	0.803	0.908
Vuong-Lo-Mendell-Rubin LRT	-	0.010	0.210	0.130	0.104	0.162
Lo-Mendell-Rubin Adjusted LRT	-	0.011	0.216	0.134	0.110	0.169
Bootstrap LRT	-	-	0.000	0.000	0.000	0.000

Note. N = 372.

Table 10
Characteristics of Latent Profiles in 4-profile Model

	N	Z-Score Means	Est. Mean	S.E.	*p*-value
Latent Profile 1 (Poor Opinion)	162.97				
GBSR Opinion Essay Total Score		-0.91	0.50	0.15	0.00
GBSR Informative Essay Total Score		-0.23	9.14	0.31	0.00
WJ-III Picture Vocabulary		-0.25	89.76	0.67	0.00
GMRT Comprehension Sub-test		-0.19	400.01	2.99	0.00
HTKS Total Score		0.00	46.03	0.73	0.00
Latent Profile 2 (Struggling Students)	12.22				
GBSR Opinion Essay Total Score		-0.57	1.92	0.88	0.03
GBSR Informative Essay Total Score		-1.43	4.33	1.41	0.00
WJ-III Picture Vocabulary		-1.47	78.41	2.52	0.00
GMRT Comprehension Sub-test		-0.98	370.315	6.11	0.00
HTKS Total Score		-3.29	10.25	3.27	0.00
Latent Profile 3 (Average Achievers)	142.02				
GBSR Opinion Essay Total Score		0.50	6.36	0.39	0.00
GBSR Informative Essay Total Score		0.13	10.58	0.37	0.00
WJ-III Picture Vocabulary		0.25	94.47	0.87	0.00
GMRT Comprehension Sub-test		0.04	408.80	4.82	0.00
HTKS Total Score		0.19	48.05	0.71	0.00
Latent Profile 4 (High Achievers)	54.78				
GBSR Opinion Essay Total Score		1.61	11.00	0.65	0.00
GBSR Informative Essay Total Score		0.75	13.08	0.69	0.00
WJ-III Picture Vocabulary		0.45	96.35	1.42	0.00
GMRT Comprehension Sub-test		1.03	445.69	5.10	0.00
HTKS Total Score		0.52	51.74	1.39	0.00

Note. N = 372. Values shown from model that included predictors. Estimated means model was calculated using WJ-III and GMRT standard scores, total scores for all other assessment values. WJ-III = Woodcock-Johnson III; Gates = Gates-MacGinitie Reading Tests; HTKS = Head-Toes-Knees-Shoulders Task; GBSR = Genre-based Scoring Rubric. Estimated means, standard errors, and *p*-values reported from model using standard and total scores.

The profiles were given labels based in the general characteristics of the profile means (see Figure 1). Profile 1 included students who appeared to perform moderately well on most assessments but struggled with the opinion essay and was labeled *poor*

opinion. This was the largest profile and was marked by average performance on a majority of the assessments, relative to the complete sample, with one exception. The opinion essay scores for students in profile 1 were very low, almost one standard deviation below the mean of the full sample. The second profile included *struggling students* who received the lowest scores across almost all assessments. This profile had, by far, the fewest number of students. The *struggling students* performed well below the sample means on all assessments, especially the HTKS behavioral regulation measure. Recall that the average scores of the complete sample fell national norms on all standardized measures, so the students in this group are performing well below typical expectations at their age. Latent profile 3 was a group of *average achievers*, who performed at or slightly above the sample mean across all assessments. This was the second-largest profile. Although labeled *average achievers,* it is important to remember that an average performance within this sample is notably lower then the nation averages provided by the standardized assessments. Profile 4 includes the *high achievers* and was a relatively small group of students. Students in this profile scored well above the mean across all assessments, particularly on reading comprehension, the HTKS assessment, and the opinion-writing task. See Table 10 for additional details.

After determining the best fitting profile structure, predictors were added to the model to determine which variables were associated with each group. The predictors included sex, ethnicity, and age. The profile proportions of the 4-profile model were altered slightly with the addition of these variables (see Table 11). In all comparisons, using the *high achievers* group as a reference, sex and age were significant predictors of group membership. Females and older students were less likely to be any other group

besides the *high achievers* profile. Hispanic and non-Hispanic students shared the same probability of group membership across all profiles. A detailed breakdown of the odds ratios in each situation can be found in Table 12. In terms of percentages, females were 61% less likely to be included in profiles 1 and 3 compared to profile 4, and 77% less likely to be grouped into profile 2. Older students are 72-87% less likely to be classified in any group besides group 4.

Descriptive information was calculated to further explore the details of profile membership, within each of the four profiles (Table 13). In the *poor opinion* and *average achievers* profiles approximately 45-46% of the students were in grade 3 and were female. The *poor opinion* profile was 77% Hispanic and 68% of the *average achiever* students were Hispanic. The *struggling student* profile was primarily male (66%), Hispanic (92%), and in second grade (75%). However, it is important to recall that the percentages for the *struggling student* profile only refer to a total of 12 students. The *high achievers* were 77% Hispanic, 62% female, and 83% of the students were members of third grade classrooms. The mean age within each group did not deviate greatly from the overall sample mean (8.13 years old), as it ranged from 7.85 years old in the *struggling students* profile to 8.50 years old in the *high achievers* profile.

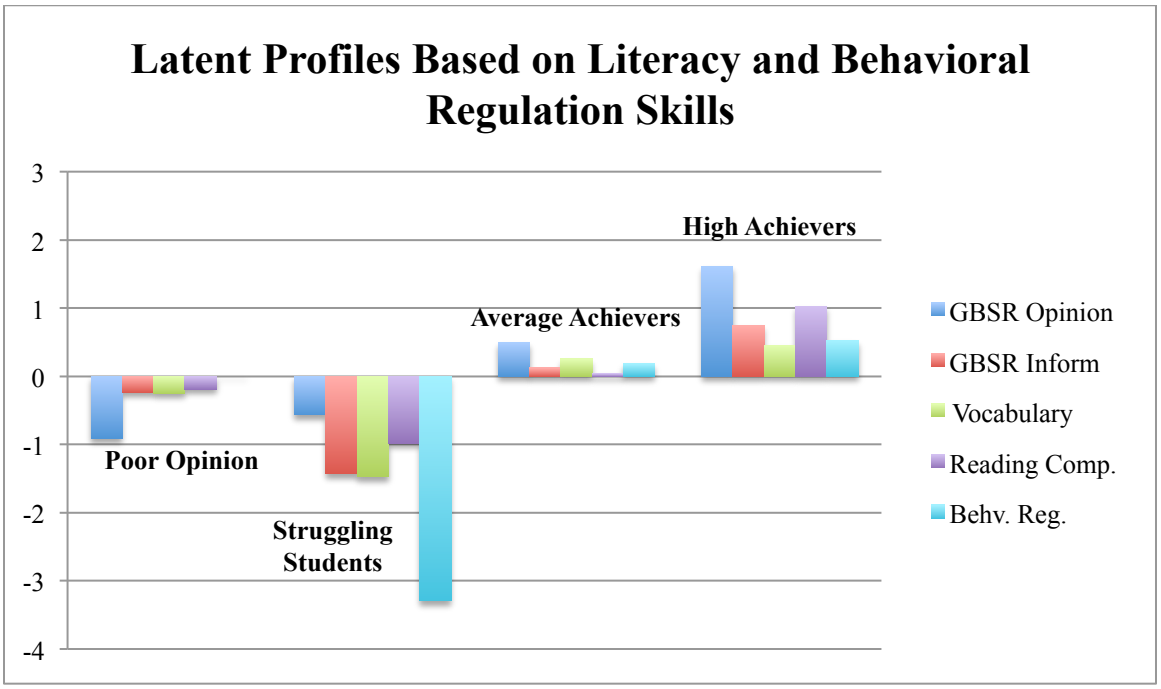

Figure 1. Values are z-scores from 4-profile model with predictors. Poor Opinion (n = 162.97), Struggling Students (n = 12.22), Average Achievers (n = 142.02), High Achievers (n = 54.78*)*

Table 11
4-profile Model With Predictors

	4-Class
Sample size	
$N_{c=1}$	162.97
$N_{c=2}$	12.22
$N_{c=3}$	142.02
$N_{c=4}$	54.78
Fit statistics	
BIC	13,120
Entropy	0.899
Vuong-Lo-Mendell-Rubin LRT	0.164
Lo-Mendell-Rubin Adjusted LRT	0.169
Bootstrap LRT	0.000

Note. N = 372.

Table 12
Group Membership as Odds Ratios with High Achievers as Reference Group

	N	Odds Ratio (95% CI)
Latent Class 1 (Poor Opinion)	162.97	
Female		0.39* (0.16-0.92)
Hispanic		1.19 (0.50-2.81)
Age		0.28* (0.14-0.59)
Latent Class 2 (Struggling Students)	12.22	
Female		0.23* (0.05-0.99)
Hispanic		3.60 (0.42-31.06)
Age		0.13* (0.03-0.53)
Latent Class 3 (Average Achievers)	142.02	
Female		0.39* (0.16-0.94)
Hispanic		0.63 (0.26-1.53)
Age		0.28* (0.15-0.52)

Note. Total N = 372. Reference group labeled *high achievers* and N = 59.75. Confidence intervals (CI) that do not contain the value 1 are significant at a .05 level.

Table 13
Descriptives of Group Membership Predictors

	N	Mean	Percentage
Latent Class 1 (Poor Opinion)	162		
Female		-	45%
Hispanic		-	77%
Grade 3		-	46%
Age		8.08	-
Latent Class 2 (Struggling Students)	12		
Female		-	33%
Hispanic		-	92%
Grade 3		-	25%
Age		7.85	-
Latent Class 3 (Average Achievers)	145		
Female		-	46%
Hispanic		-	68%
Grade 3		-	46%
Age		8.10	-
Latent Class 3 (High Achievers)	53		
Female		-	62%
Hispanic		-	77%
Grade 3		-	83%
Age		8.50	-

Note. Total N = 372. Average age of total sample was 8.13 years.

CHAPTER 4. DISCUSSION

This dissertation investigated relation between children's performance on genre-based writing tasks, specifically informational and opinion essays, and their behavior regulation and literacy skills in second and third grade. Notably, children's performance on the informational essays was stronger than their performance on the opinion essay. Additionally, children who used more genre-specific elements in their writing were also more likely to have stronger literacy skills. This finding was also reflected in the latent profiles identified within the sample. Teachers reported that they were more likely to provide instruction on writing informational essays than opinion essays, a bias that was also reflected in their curriculum materials. This study also highlighted the importance of collecting complete contextual information relating to a study sample. Examining background information in detail served to provide a more complete foundation on which to interpret the study results. Results indicated the influence of teacher instruction and the reciprocal relations between children's inclusion of genre-based elements in their writing and behavioral regulation, vocabulary, and reading comprehension skills. Finally, results emphasized the importance of considering children's academic prowess holistically, as it fits within the context of classroom-level instruction, and across multiple paths of influence.

Contextual Influences

As described by the bio-ecological model (Bronfenbrenner & Morris, 1998), there are many sources of influence that can shape children's development. This includes proximal and distal influences such as home life, family structure, as well as the

community and culture of an area, or in the case of this study, school environment. As described in detail, the schools that participated in this study served a majority of Hispanic students, 73% of which were eligible for free and reduced lunch. Both schools received the designation of a Title I school. Children attending schools in high poverty areas have repeatedly been found to perform worse on a number of outcomes compared to national norms (McBride Murry, Berkel, Gaylord-Harden, Copeland-Linder, & Nation, 2011; Ready, Edley, & Snow, 2002). This gap was apparent when the national norm means, provided by the standardized assessments, were compared to the average scores of the children in this study. Third-grade children within this study sample performed at or below the level of an average second-grade student in the fall from the normed sample. This pattern held across measures, including writing fluency, reading comprehension, and vocabulary. Thus, it is important to keep the unique characteristic of this sample at the forefront when considering the implications of the results.

Teachers were another source of influence on the school context and children's development. Overall, information yielded from the teacher background and writing surveys were consistent with past research. Published studies have stated that teacher reports are often highly variably when they are asked about the amount of time and types of activities they use when teaching writing (Gilbert & Graham, 2010). The sample of teachers who responded to the survey for this study followed this pattern and indicated a wide range for the amount of time they spent teaching writing. Responses were also highly variable in the types of writing instruction teachers reported providing to their students.

The writing survey results also aimed to capture the teachers' personal feeling towards teaching writing and personally participating in writing activities. Again, the responses were similar to past studies (Brindle, Graham, Harris, & Hebert, 2015) with teacher means concentrated at approximately 4.5 on the 6 point scale; these responses revealed that the average teacher only 'slightly agreed' with following statements: I like to teach writing, I like to write, and I am effective at teaching writing. However, the individual scores ranged from 3 (slightly disagree) to 6 (strongly agree). In combination, the variability among teachers on writing practices, the vast selection of potential writing lessons and activities available, as well as differences in personal belief about writing amongst teachers must be kept in mind when conclusions are drawn from the results of any school-based writing study.

Impact of Genre-Specific Writing Instruction

The variability and inconsistency of teachers' writing instruction was not only captured in their survey responses but may also be reflected in the children's writing performance. While most of the variability within children's writing scores occurred between children, 10% of the variance fell between classrooms for the informative essay scores and 5% of the variability was between classrooms for the opinion essay scores. This was a relatively large amount of the variance, considering that, at the time of data collection, the students had only been in these classrooms for approximately two months.

The difference in levels of variance accounted for between the genres also aligned with the teacher-reported instructional practices. Almost all teachers who responded to the survey reported teaching students how to 'write to inform', but only slightly over half

indicated that they had taught their students how to 'write to persuade'. It has also been shown that teachers may feel less prepared to teach persuasive writing compared to informative writing (Brindle, 2013). It is possible that a greater proportion of the variance was explained by classrooms for the informative essay outcome because more teachers were teaching lessons on this topic. There may be less classroom-level differences for opinion writing because a significant number of classroom teachers were simply not covering this topic. This potential connection between teacher instruction and children's writing performance has been shown across genres in previous research (Scott, 2012).

The latent profile analysis (LPA) also underscored the potential impact of classroom instruction on a child's writing development. Overall, the LPA revealed that children within this sample could be most accurately classified as belonging to one of four distinct profiles using the five variables of interest: opinion essay total score, informative essay total score, vocabulary, reading comprehension, and behavioral regulation. Each profile was given a label based on the identifying characteristics of the profiles. The *poor opinion* profile was the largest and included children who performed near the sample mean on all measures except the genre-based scoring rubric (GBSR) total score for the opinion essay. Children in the *poor opinion* profile scored almost one standard deviation below the mean of the complete sample on the opinion essay task. Children in the *struggling students* profile performed below the mean on all assessments and children in the *high achievers* profile performed above the mean on all assessments. The *average achievers* profile included children who scored at or slightly above the sample mean on all assessments. Finally, it was found that girls and older children in the sample were significantly more likely to be members of the *high achievers* profile when

compared to the other profiles.

The constellation of skills presented by children in the *poor opinion* profile may have reflected the influence of instruction on a child's writing performance. In comparison to the *average achievers* profile, the child in the *poor opinion* group performed somewhat similarly on all assessments with the exception of the opinion-writing task. Additionally, descriptive information indicated that, in general, children included fewer genre-elements when composing an opinion essay (and thus received a lower score) than when writing an informative essay. This differentiated performance on only one of the five variables considered within each of the profiles may highlight the possibility that a specific set of knowledge or skills may be required to generate a persuasive text. This was also supported by the child characteristics within the *average achievers* and *poor opinion* profiles. The average age of both profiles was just over 8 years old and both consisted of 45-46% female third graders, with the *poor opinion* profile containing a slightly higher percentage of Hispanic children. The similarity between the profile demographics lends support to the possibility of an influence outside of the variables considered here (i.e. writing instruction) as the source for the opinion writing performance discrepancy. Essentially, this may have indicated that many children were not receiving the instruction necessary to obtain opinion or persuasive writing skills, and without this instruction they performed poorly.

The stark drop-off in performance on the opinion essay task within the *poor opinion* profile is one major point of interest. Unlike all other profiles identified, children in the *poor opinion* group appear to have a constellation of skills that does not 'hang together'. If there is a specific skill or set of skills that students must have before they are

able to generate an opinion essay with any accuracy the child in the *poor opinion* profile have not yet obtained this ability or skill set. In contrast, the *average achievers* appear to possess this crucial piece of knowledge. There are likely a number of reasons that children fell into this profile. This gap may be the result of the highly variable amounts and types of writing instruction students have received over their years in school. Perhaps children in the *poor opinion* profile have not yet received any persuasive writing instruction and their peers in the *average achievers* group have had the opportunity to learn about or practice composing opinion essays. Studies have shown that with adequate instruction, even struggling students can write quality opinion essays (De La Paz, 1997; Harris et al., 2012, 2014).

Alternatively, metacognitive skills are coming on board around the age of 8, during third grade (Lyons & Ghetti, 2010). It is possible that opinion writing may rely more heavily on the use of these metacognitive skills. Hence some children may have been better able to write opinion pieces because they had a more fully developed understanding of other's perspectives and how to create an argument. Whereas children in the *poor opinion* profile required more time to develop these metacognitive skills before they could be effectively utilized for academic tasks. However, this conjecture goes beyond the data currently available in this study, as we cannot separate instruction and child performance.

Writing instruction is a crucial piece of this picture as demonstrated by research that has shown young students can successfully write opinion compositions if they are taught how to do so (Graham et al., 2014). However, the details of the teacher instruction and genre-based essay writing performance reflected here may have highlighted a

connection, which Bereiter & Scardamalia (1987) also describe, between verbal skills and writing ability. In the context of a casual dialogue, involving multiple speakers and listeners, the topic of conversation can be actively clarified, supported, and redirected. Continuous feedback can be provided during a conversation; in turn this allows the speaker to actively adjust the conversation to their audience. This active support allows children to express ideas verbally that are of higher quality and more complex than typically conveyed through their writing. Due to the presences of the opinion/persuasion genre in both oral and writing contexts, teachers may feel that they have provided some instruction on the opinion and persuasion when they have only focused on oral language lessons or the overall concepts and elements relating to the opinion genre. Child gains in writing performance are unlikely to improve unless they also receive explicit genre-specific writing instruction. More than likely, there are multiple reasons for the differences noted in children's performance on the informational and opinion essays and the identification of the *poor opinion* group.

Holistic Nature of Genre-Based Writing Performance

Another finding of interest is the role played by reciprocal effects between writing and other literacy skills. The concept of multiple influences effecting a single outcome, as well as the potential for bi-directional relationships between variables, is supported by the bio-ecological model (Bronfenbrenner & Morris, 1998), dynamic systems theory (Yoshikawa & Hsueh, 2001), and more recently, in academic contexts, by the Lattice model (Connor et al., 2014; Connor et al., 2015). Prior to analysis it was hypothesized that the *genre-based scoring rubric* (GBSR) total score for both essay

genres would predict reading comprehension and behavioral regulation outcomes.

The idea that writing in a specific genre is not a standalone skill independently acquired, but can serve as a proxy for predicting literacy abilities, was supported by the results. As hypothesized, the GBSR total score for the informative essay significantly predicted student outcomes on the behavioral regulation and reading comprehension tasks, but not for the vocabulary assessment. The GBSR total score for the opinion essay was a significant predictor for behavioral regulation, reading comprehension, and vocabulary. Writing fluency also significantly predicted reading comprehension and vocabulary outcomes. This connection may be a direct reflection of the writing fluency task that requires students to read and understand three words prior to using them to compose a logical sentence.

Results also indicated that children who wrote longer opinion essays generally had weaker vocabulary scores. It seems that, for the opinion genre-based score, the amount of content you generate my not be indicative of the quality. The precision of the content, as reflected by the inclusion of genre elements, may be a better indicator of the vocabulary knowledge and essay total score. To rephrases, having access to the correct terms, genre knowledge, and expressions needed to define a position may be more impactful on essay quality compared to the length of an opinion composition. As the reciprocal effect reveals, the ability to express these complex positions well and concisely are likely to belong to children with higher vocabulary skills.

In addition, children who were identified as Hispanic generally had weaker scores on their opinion essay and vocabulary compared to their peers. Hence, a literacy gap clearly extends to writing, particularly for opinion pieces in this case. The connection

between Hispanic students and lower vocabulary scores is likely due to the high number of English language learners in this sample. The relevance of this sub-sample and its connection to the study conclusions is discussed further in the limitations section.

The cross-construct and reciprocal relations between cognitive and academic skills were further demonstrated by the latent profile analysis. Two of the originally hypothesized profiles emerged in the analysis, both reflecting how skills regularly 'hang together' across constructs. The first was the *high achievers* profile. These students performed above average across all of the skill areas that were examined. As predicted, this group was also more likely to include female students. Older students were also more likely to be identified as members of the *high achievers* profile although the profile mean (8.5 years of age) was not drastically higher than the mean age of the overall sample (8.13 years of age). In addition, this profile only contained 24% of third-grade children from the total sample, meaning this profile was not simply identifying children who had been receiving instruction for a longer period of time.

Age and grade have been shown to have little impact on writing quality in the elementary grades (Graham et al., 1993; Kamberelis, 1999). However, age was a significant predictor of group membership. When multiple skills are considered, in order to construct a holistic profile, it is understandable that age and grade (which are highly confounded) may have a greater influence; reading comprehension, vocabulary, and behavioral regulation have all been to shown to improve based on age and the number of years a student attends school.

The second hypothesized profile that emerged was the *struggling students*. These students performed below the sample mean on all assessments, perhaps demonstrating

how the latticed structure of these skills binds them to one another, preventing students who are struggling in one area from truly excelling in another. All literacy skills captured here appear highly contingent on related abilities within and across other domains. The *struggling students* profile, while it included the smallest number of students, was particularly concerning.

The mean of the entire study sample could be considered distressingly low, well below national average norms. For the *struggling students* to score so far below the mean of this sample was an academic-performance red flag. One potential explanation for the small number of students in the profile, as well as the overall low performance, was that students grouped into this profile were a small but identifiable group of students who had language, behavioral, or regulatory disorders. While the intervention status and developmental diagnoses were not available at the time of the study, such information would be useful to determine whether the students in this group had received specific diagnoses. A number of language impairments or developmental disorder could explain the *struggling student's* performance as well as shed light on what services or interventions they may be receiving.

In summary, by considering academic performance skills as bi-directional and using a holistic framework, significant and differential reciprocal effects between writing in specific genres, behavioral regulation, and literacy skills were found. A child's ability to write informative or opinion texts, while incorporating high-quality genre elements, predicted greater skill in reading comprehension and behavioral regulation. In addition, the lattice-like structure of these skills meant that a majority of the students could be grouped into profiles where all skills, transcending construct, reflected a similar level of

mastery. This highlights the importance of considering reciprocal connections, especially between reading and writing. Reading is not only a skill necessary for writing, but high-quality writing may also serve as an indicator of reading ability. In a similar vein, being able to successfully generate texts in more complex or specific genres, like opinion essays, may reflect a more extensive vocabulary.

Differential Performance on Genre-Specific Writing

A central aim of this dissertation was to investigate how literacy skills predict a child's writing ability, as well as consider how these relations may differ between genres. As noted previously, a number of differences between the genres themselves, as well as children's writing performance within them, were observed. In this case, an overall pattern emerged; children performed more poorly on the opinion essay then the informative composition. There are a number of possible reasons for this differentiated performance across genres.

Genre-based performance dissimilarities were foreshadowed early on during the analysis. Descriptives revealed that the average informative essay score was over two times higher than the average opinion essay score. In addition, children with stronger reading comprehension and vocabulary skills were significantly more likely to include opinion essay genre elements in their opinion essays compared to children with weaker skills. Females generally performed better on the opinion-writing task as well. These results aligned with previous research showing that girls generally outperform boys on literacy tasks in the early elementary grades (Pajares et al., 1999). Contrary to the hypothesis, children's behavioral regulation was not associated with their opinion essay

score. Also unexpected, children's writing fluency and word count did not significantly predict their genre-based opinion essay score.

Children who had higher reading comprehension scores, higher behavioral regulation scores, and wrote longer essays performed better on the genre-based informative essay task. A child's sex and vocabulary abilities were not related to their informative essay performance. A portion of the findings supported the hypothesis that behavioral regulation, comprehension, and word count would predict the quality of children's informative essays. However, the full hypothesis was only partially supported as writing fluency and vocabulary assessment scores were not significantly related to the informative essay scores.

The connection between a child's reading comprehension scores, vocabulary scores, and their inclusion of more genre elements when writing may indicate that generating an opinion essay required more than the ability to understand and comprehend text; children also had to have access to an accurate genre schema and vocabulary repertoire extensive enough to accurately reflect their position or opinion. Children within this sample may have lacked skills in both of these areas.

First, the apparent absence of instruction on opinion writing, reflected in both the teacher surveys and curriculum materials (see Appendix D), meant children were unlikely to have a complete or accurate schema to use when composing an opinion essay. In contrast, writing activities involving informative writing (and informative-writing genre elements) were more common in the curriculum and were reported to occur more often during classroom instruction, as indicated by the teacher surveys. Thus, children were more likely to have a more accurate and detailed understanding of the elements required

for informative writing. This connection between genre understanding and classroom instruction may explain why children including more genre-specific elements in the informative essay task compositions.

Secondly, besides the importance of reading comprehension, a skill related to composing in either genre, vocabulary was a significant predictor of the opinion GBSR total score. While vocabulary has been shown to play an important role across genres (Olinghouse & Wilson, 2013), the implication of this finding must be considered within the sample context. The high number of Hispanic ELL students may have somewhat inflated the influence of vocabulary, specifically because language status was not accounted for in the analysis. As a result, children in this sample, many who have not received instruction on opinion writing, may also have an English vocabulary ability that is below their peers. This means that ELL children were even less likely than their peers to have little (if any) opinion-specific terms or schemas available to refer to when writing in English. Interpreted in this way, the differential performance between the opinion and informative essays may be due, in part, to lack of instruction as well as a sample-specific skill deficit in English vocabulary.

Many of the student-generated opinion essays shared another characteristic. More children received a total score of 0 on their opinion essay (35%) compared to their informative writing total score (3%). This is likely a reflection of the two challenges outlined above. The total score differential also captures a fundamental issue that came up repeatedly when the essays were being scored related to a child's understanding of a specific writing prompts. A majority of the children who received a score of 0 on the opinion essay task did so because they wrote about their own pet (narrative style) or

discussed why children should *have* pets and the benefits associated with owning animals in general terms. Because the very essence of an opinion essays requires choosing a side related to the original question or prompt (should children be able to *choose* their own pet, why or why not) these essays typically included none of the genre-based elements on the scoring rubric. The informative essay task did not seem to be as confusing for children, perhaps because a greater proportion of students had received some level of instruction in this area.

This phenomenon further highlights the difficulty of writing an opinion essay without adequate instruction. Prior to ever formulating a position and generating supportive reasons, a writer has to have the literacy skills necessary to accurately conceptualize the task at hand. A clear conceptualization of the writing process was described in the context of the knowledge-telling model, where a student first interprets the writing assignment, identifies the appropriate genre, generates content, and then checks the content for appropriateness (Bereiter & Scardamalia, 1987). Evidently, for a number of children, a breakdown within this writing process occurred during the opinion-writing task. There are two potential places for this breakdown. One, when they first interpreted the assignment it is possible that the students misunderstood the writing prompt or task. On the other hand, a child's schema for the genre parameters involving what should, or should not, be included in an opinion essay may have been inaccurate and thus they were never able to correct their writing during the process of content generation.

Results Related to Current Literature

There have been a small number of studies focused on student writing and genre over the past decade. While small in number, the results from these past studies complement the findings from this current study presented here. Consistent with the study by Olinghouse (2008) on third graders' narrative essays, it was found that sex and reading comprehension impact writing outcomes in other genres. The consistency of findings relating reading comprehension to writing quality also provide further support for the connection between reading and writing ability (NICHD & IRA, 2012).

The minimal impact of age and grade on writing outcomes in the early elementary grades (but not on the holistic literacy profiles) supported findings in the study by Kamberelis (1999). The study considered kindergarten through second-grade students' writing in stories, science reports, and poems and found that age had minimal influence on writing quality. The Kamberelis study also reported that some students were able to write in multiple genres while others did not. This same genre division amongst children can be seen in the LPA results, with some groups of children able to generate texts in multiple genres while others were less successful. Finally, in both studies, students were more likely to generalize the genre elements from a narrative text into other genres. This generalization is reflected in the lower scores on the GBSR for the opinion essay, which shared fewer 'narrative-like' elements compared to writing in the informative genre. However, the impact of instruction was not considered in this study.

Relating the CCSS to Genre-based Writing Performance

A driving force for the inception of this dissertation study was the detailed standards set forth in the Common Core regarding elementary student performance on

opinion and informative writing. Because this study was carried out prior to any accountability requirements, the results reflect how student-writers perform when their instruction is not directly tied to meeting the standards. Opinion writing standards for both second and third grade require children to introduce their topic, state an opinion, include reasons with support, end with a conclusion, and utilize linking words. All of these elements were captured in the GBSR used to evaluate the essays but the total scores revealed that all of these elements are *not* currently present in the students' opinion writing.

In a similar vein, the CCSS state that informative text should include a central topic, with the addition of facts, definitions and details, linking words should be present, and a conclusion should summarize the composition. Again, each of these elements were captured by the GBSR used to calculate the children's informative text total score. While the scores were higher, on average (compared to the opinion essays), the average student essay in the informative genre did not include a majority of the elements outlined by the standards.

These findings reveal that, at the very least, if students are expected to write essays that meet or exceed the standards set forth by the Common Core, they must be taught the skills and strategies that will allow them to produce such compositions. Based on these findings, the genre elements associated with the CCSS are currently not reflected in student writing. In addition, differences between second and third-grade children's writing appear to be minor. This means any change increase in the standard expectations between grades must also be explicitly taught, as there does not appear to be a natural, developmentally-based improvement in writing competence between second and third

grade. As it stands, some genre-elements listed in the CCSS are more detailed in third grade, so it is in those areas where instruction should likely be focused as children move from second to third grade.

Limitations

The results and implications of this study would not be complete without also discussing the limitations that were present. First, the sample participating in this study was primarily Hispanic and the study took place in a relatively high poverty, rural area. While these are not limitations in and of themselves, they do prevent the conclusion drawn from these results from being highly generalizable. One of the primary reasons for this is the subpopulation of students who were also English Language Learners (ELL), estimated at about 25% of the sample. Further exploration in this area is beyond the scope of this dissertation but worth investigating as more data are available. Research has shown that learning English while attending elementary school can impact a number of academic achievement outcomes (Bedore & Peña, 2008; Hemphill et al., 2011). Specifically, ELL status is often related to lower vocabulary outcomes when students are only tested in one language (Hoff et al., 2012) and this relation could partially responsible for some of the findings relating vocabulary ability and the writing outcomes. There may also be additional cultural influences within this sample that could help explain the study findings. Therefore, these results should be replicated in more diverse samples before the results can be generalized.

Another limitation to the claims that can be made is the cross-sectional and concurrent nature of the data. While we have discussed potential differences between the

writing performance of children in grades 2 and 3, or lack there of, conclusions cannot be drawn in a true developmental sense. It is possible that a number of confounding differences between the second and third grade cohorts could explain a portion of the findings. In a similar vein, utilizing data collected early in the school limits the impact of the teacher and instructional practices that can accumulate over a year. This also means these relations are left unexplored. The results reported in this study can most accurately be described as reflecting not only the influence of the first two/three months of the school year, but also the previous years writing instruction and any academic practice that took place over the summer. Conclusions cannot be drawn related to how instruction would impact these outcomes across an academic year.

Finally, there were a number of limitations related to the assessment data collected. First was the limited use of the SSIS Social Skills measure. While behavioral regulation was captured through the HTKS task, the full construct of self-regulation was not explored because of the limited number of survey responses obtained at the time this study concluded. While research has clearly shown that self-regulation is related to writing outcomes (Harris, Graham, Chambers, & Houston, 2014; Malpique & Veiga-Simão, 2014), the details of the relation between self-regulation and the GBRS remains undefined. A similar situation occurred with the student-level FARL information, which was not available. This left the direct relation between SES and the GBSR outcomes undetermined.

Next Steps

The results and limitations of this study highlight areas that should be further explored and better explained within the literacy and writing literature. One crucial direction for the future investigation of the impact of teacher instruction on writing and genre, unless we have equal amounts and types of instruction for each genre we cannot draw conclusions about differences between the genres. Instruction as a predictor has been somewhat ignored in genre-based research and this issue needs to be better addressed.

Another area is the exploration of children's discourse knowledge on genre-based writing outcomes. This question has been explored more generally (Olinghouse et al., 2015; Olinghouse & Graham, 2009) but a detailed exploration of the impact of discourse knowledge on writing outcomes across genres in the early elementary grades has not yet been published. Studies focused on elementary students and across multiple genres would fill significant gaps in the literature.

Longitudinal data collection aimed at exploring the developmental trajectory of literacy and genre-based writing skills as well as their influence over one another is also greatly needed. There is a growing base of information on the development of writing skills in students throughout the elementary years but differences across different genres, like those illuminated in this study, have not been explored adequately. With the continued development and influence of the CCSS, it is also important to select the genres of focus carefully to ensure their pedagogical relevance.

Additional research, including randomized controlled experiments, focused on teacher-led writing instruction and the impact of teacher practices on genre-focused writing outcomes is also needed. The type and amount of writing instruction currently

occurring in classrooms needs to be explored. The changes teachers and administrators are making in response to the adoption of the CCSS, as well as the impacting these changes may have on writing outcomes across and within genres, should also be documented and carefully explored. Continuing work on instructional practices has the potential to expand what is know about genre-based instruction and identify what methods are more effective in which contexts.

Theoretical and Practical Implications

The potential impact of this study is twofold. The first potential impact is the picture that was painted regarding the current state of children's text generation in the early elementary grades. It is clear that, without explicit instruction, second and third grade students do not have the knowledge, aptitude, and skills required to consistently and proficiently generate texts in a pre-determined genre. This finding, in turn, can be used to inform teachers and educators that children require effective instruction on how to write in different genres. In addition, the skills required for writing in a specific genre did not appear to generalize across other genres (Graham, Hebert, Paige Sandbank, & Harris, 2014).

However, the *high achievers* profile demonstrates that the expectations set forth by the CCSS are achievable by third grade, adding credence to the developmental appropriateness of CCSS in second and third grade. The results presented here also seem to support conceptualizing standards in a more 'general benchmark' fashion, perhaps between the end of third and beginning of fourth grade, as opposed to the highly-specific requirements attached to each grade level. While targeted instruction could no doubt

improve performance and allow many children to meet the standards, there does not appear to be a natural or developmental progression in skill between second and third grade. Past research has shown fundamental differences in writing and pre-writing planning may occur at the beginning of fourth grade (Bereiter & Scardamalia, 1987; Boscolo, 1990). This may be an indication of a more developmentally based time period where improvements in writing children's writing performance would be expected.

Looking beyond the primary and intended impact of this study, there is another use for the results. As our understanding of what students know about genres has expanded, the focus can begin to shift to teach these skills. The CCSS, as they stand now, emphasize writing in the classroom more than previous standards, meaning instruction must cover a more diverse set of skills compared to current practices (Applebee & Langer, 2011). Even with the limited number of writing standards in place prior to the CCSS, many teachers viewed writing instruction as a challenge (Berry, 2006; Cutler & Graham, 2008). In order for teachers to meet this challenge they have to know what practices are effective. In tandem with future research, the results from this study may help elucidate where instruction must be focused in order to improve writing outcomes in different genres and across student profiles. Currently, few teachers are customizing or individualizing their instruction to meet student needs in any area of writing instruction (Troia, Graham, & Harris, 2016). Armed with this information, researchers and teachers can begin to design and implement programs that will help determine which skills are most easily taught and which skills areas might have the greatest impact on children's writing development.

Conclusion

This dissertation was designed to shed light on a number of questions related to genre-based writing outcomes. The results of this study have contributed to our knowledge of how current students' writing skills compare to criteria set forth by the CCSS, and what literacy and behavioral variables predict writing outcomes and visa versa.

It was found that students' received lower scores on opinion writing compared to their informative compositions, possibly a reflection of unbalanced instruction across genres or metacognitive demands, but this remains to be tested. It was also found that greater skill in reading comprehension was associated with better performance in both genres. In turn, higher vocabulary ability only predicted higher genre-based scores in opinion essays and better performance on a behavioral regulation task only predicted better informative essay outcomes. Reciprocal effects between writing outcomes and literacy skill were also found. Specifically, better performance on the opinion-writing task, but not the informative essay task, predicted higher vocabulary outcomes. Finally, students appear to fall into four profiles: high achievers, average achievers, struggling students, and a group of students who had average literacy skills but scored extremely poorly on the opinion essay task.

These results suggest that students likely require additional instruction if their writing is to include the elements outlined in the CCSS. More longitudinal and experimental research on the opinion and informative writing needs to be developed and carried out. The importance of including literacy and regulatory skills when studying writing must also be stressed. Finally, a detailed investigation of instructional methods

for teaching genre needs to be carried out in order to arm teachers with the information and strategies they need to teach these skills.

References

Aalst, J. (2009). Distinguishing knowledge-sharing, knowledge-construction, and knowledge-creation discourses. *International Journal of Computer-Supported Collaborative Learning*, *4*(3), 259–287. doi:10.1007/s11412-009-9069-5

Aarnoutse, C., Leeuwe, J. Van, Voeten, M., & Oud, H. (2001). Development of decoding, reading comprehension , vocabulary and spelling during the elementary school years. *Reading and Writing: An Interdisciplinary Journal*, *14*, 61–89.

Abbott, R. D., Berninger, V. W., & Fayol, M. (2010). Longitudinal relationships of levels of language in writing and between writing and reading in grades 1 to 7. *Journal of Educational Psychology*, *102*(2), 281–298. doi:10.1037/a0019318

Applebee, A., & Langer, J. (2011). A Snapshot of Writing Instruction in Middle Schools and High Schools. *English Journal*, *6*(100), 14–27. Retrieved from http://www.ekuwritingproject.org/uploads/5/2/4/0/5240502/snapshot.pdf

Applebee, A., & Langer, J. (2014). What Is Happening the Teaching of Writing? *The English Journal*, *98*(5), 18–28.

Badger, R., & White, G. (2000). A process genre approach to teaching writing. *ELT Journal*, *54*(2), 153–160. Retrieved from http://eltj.oxfordjournals.org/content/54/2/153.short

Beard, R., & Burrell, A. (2010). Investigating narrative writing by 9-11-year-olds. *Journal of Research in Reading*, *33*(1), 77–93. doi:10.1111/j.1467-9817.2009.01433.x

Bedore, L. M., & Peña, E. D. (2008). Assessment of Bilingual Children for Identification of Language Impairment: Current Findings and Implications for Practice. *International Journal of Bilingual Education and Bilingualism*, *11*(1), 1–29. doi:10.2167/beb392.0

Beers, S. F., & Nagy, W. E. (2010). Writing development in four genres from grades three to seven: syntactic complexity and genre differentiation. *Reading and Writing*, *24*(2), 183–202. doi:10.1007/s11145-010-9264-9

Benton, S. L., Corkill, A. J., Sharp, J. M., Downey, R. G., & Khramtsova, I. (1995). Knowledge, Interest, and Narrative Writing. *Journal of Educational Psychology*, *87*(1), 66–79. doi:10.1037/0022-0663.87.1.66

Bereiter, C., & Scardamalia, M. (1987). *The psychology of written composition*. (R. Glaser & L. Resnick, Eds.)

Berninger, V. W., Abbott, R. D., Abbott, S. P., Graham, S., & Richards, T. (2002). Writing and Reading: Connections Between Language by Hand and Language by Eye. *Journal of Learning Disabilities*, *35*(1), 39–56. Retrieved from http://ldx.sagepub.com/content/35/1/39.short

Berninger, V. W., Abbott, R. D., Whitaker, D., Sylvester, L., & Nolen, S. B. (1995). Integrating Low- and High-Level Skills in Instructional Protocols for Writing Disabilities. *Learning Disability Quarterly*, *18*(4), 293. doi:10.2307/1511235

Berninger, V. W., Fuller, F., & Whitaker, D. (1996). A process model of writing development across the life span. *Educational Psychology Review*, *8*(3). Retrieved from http://link.springer.com/article/10.1007/BF01464073

Berry, R. A. W. (2006). Beyond Strategies: Teacher Beliefs and Writing Instruction in Two Primary Inclusion Claarooms. *Journal of Learning Disabilities*, *39*(1), 11–24.

Braaksma, M. A. H., Rijlaarsdam, G., & Bergh, H. van den. (2004). Observational learning and its effects on the orchestration of writing processes. *Cognition and Instruction*, *22*(1), 1–36.

Brindle, M. E. (2013). *Examining Relationships Among Teachers' Preparation, Efficacy, and Writing Practices*. Dissertaton. Vanderbilt University.

Brindle, M., Graham, S., Harris, K. R., & Hebert, M. (2015). Third and fourth grade teacher's classroom practices in writing: a national survey. *Reading and Writing*, *28*(9). doi:10.1007/s11145-015-9604-x

Brindley, R., & Schneider, J. J. (2002). Writing Instruction or Destruction: Lessons to be Learned from Fourth-Grade Teachers' Perspectives on Teaching Writing. *Journal of Teacher Education*, *53*(4), 328–341. doi:10.1177/0022487102053004005

Bronfenbrenner, U., & Morris, P. A. (1998). The Bioecological Model of Human Development. In R. M. Lerner & W. Damon (Eds.), *Handbook of child psychology: Theoretical models of human development* (6th ed., pp. 793–828). Hoboken, NJ: John Wiley & Sons.

Cameron Ponitz, C. E., McClelland, M. M., Jewkes, A. M., Connor, C. M., Farris, C. L., & Morrison, F. J. (2008). Touch your toes! Developing a direct measure of behavioral regulation in early childhood. *Early Childhood Research Quarterly*, *23*(2), 141–158. doi:10.1016/j.ecresq.2007.01.004

Common Core State Standards: National Governors Association and Council of Chief School Officers. (2010). Retrieved from http://www.corestandards.org/

Connelly, V., Dockrell, J. E., Walter, K., & Critten, S. (2012). Predicting the Quality of Composition and Written Language Bursts From Oral Language, Spelling, and Handwriting Skills in Children With and Without Specific Language Impairment. *Written Communication*, *29*(3), 278–302. doi:10.1177/0741088312451109

Connor, C. M. (2011). Child Characteristics X instruction Interactions: Implications for Students' Literacy Skill Development in the Early Grades. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook on Early Literacy Research, Volume 3* (3rd ed., pp. 256–267). New York.

Connor, C. M., Day, S. L., Phillips, B., Sparapani, N., Ingebrand, S., McLean, L., Barrus, A., & Kaschak, M. P. (2015). Reciprocal Effects of Self-Regulation, Semantic Knowledge, and Reading Comprehension in Early Elementary School. *Child Development*, online only

Connor, C.M., Ingebrand, S.W., & Dombek, J.L (2014) Chapter 2: The Reading Side. In Miller, B., McCardle, P, & Long, R. (Eds.), *Teaching Reading and Writing: Integrating Reading and Writing Instruction in the Classroom*. Maryland: Paul H. Brookes Publishing Co., Inc.

Connor, C. M., Morrison, F. J., Fishman, B., Crowe, E. C., Al Otaiba, S., & Schatschneider, C. (2013). A Longitudinal Cluster-Randomized Controlled Study on the Accumulating Effects of Individualized Literacy Instruction on Students' Reading From First Through Third Grade. *Psychological Science*, *24*(8), 1408–1419. doi:10.1177/0956797612472204

Connor, C. M., Morrison, F. J., Fishman, B., Giuliani, S., Luck, M., Underwood, P. S., Bayraktar, A., Crowe, E. C., & Schatschneider, C. (2011). Testing the Impact of Child Characteristics × Instruction Interactions on Third Graders' Reading Literacy Instruction. *Reading Research Quarterly*, *46*(3), 189–221.

Connor, C. M., Morrison, F. J., Fishman, B. J., Schatschneider, C., & Underwood, P. (2007). Algorithm-Guided Individualized Reading Instruction. *Science*, *315*(2007), 464–465.

Connor, C. M., Phillips, B. M., Kaschak, M., Apel, K., Kim, Y.-S., Al Otaiba, S., Crowe, E . C., Thomas-Tate, S., Cooper Johnson, L., & Lonigan, C. J. (2014). Comprehension Tools for Teachers: Reading for Understanding from Prekindergarten Through Fourth Grade. *Educational Psychology Review*, *26*(3), 379–401. doi:10.1007/s10648-014-9267-1

Connor, C. M., Piasta, S. B., Fishman, B., Glasney, S., Schatschneider, C., Crowe, E., Underwood, P., & Morrison, F. J. (2009). Individualizing student instruction precisely: effects of Child x Instruction interactions on first graders' literacy development. *Child Development*, *80*(1), 77–100. doi:10.1111/j.1467-8624.2008.01247.x

Cutler, L., & Graham, S. (2008). Primary grade writing instruction: A national survey. *Journal of Educational Psychology*, *100*(4), 907–919. doi:http://dx.doi.org/10.1037/a0012656

De La Paz, S. (1997). Strategy instruction in planning: Teaching students with learning and writing disabilities to compose persuasive and expository essays. *Learning Disability Quarterly*, *20*(3), 227–248. Retrieved from http://ldq.sagepub.com/content/20/3/227.short

De La Paz, S. & McCutchen, D. (2011). Learning to Write. In R. E. Mayer & P. A. Alexander (Eds.), *Handbook of Research on Learning and Instruction*. New York: Routledge Press.

DeGroff, L.-J. C. (1987). The Influence of Prior Knowledge on Writing, Conferencing, and Revising. *The Elementary School Journal*, *88*(2), 105. doi:10.1086/461527

Dobbs, C. L. (2013). Signaling organization and stance: academic language use in middle grade persuasive writing. *Reading and Writing*. doi:10.1007/s11145-013-9489-5

Donovan, C. (2001). Children's Development and Control of Written Story and Informational Genres: Insights from One Elementary School. *Research in the Teaching of English*, *35*(3), 394–447.

Dyer N. G., Hanges, P. J., Hall, R. J. (2005) Applying multilevel confirmatory factor analysis techniques to the study of leadership. *The Leadership Quarterly*. 16, 149–167.

Englert, C. S., Stewart, S. R., & Hiebert, E. H. (1988). Young writers' use of text structure in expository text generation. *Journal of Educational Psychology*, *80*(2), 143–151. doi:10.1037/0022-0663.80.2.143

Ferretti, R. P., MacArthur, C. A., & Dowdy, N. S. (2000). The effects of an elaborated goal on the persuasive writing of students with learning disabilities and their normally achieving peers. *Journal of Educational Psychology*, *92*(4), 694–702. doi:10.1037//0022-0663.92.4.694

Fitzgerald, J., & Shanahan, T. (2000). Reading and Writing Relations and Their Development. *Educational Psychologist*, *35*(1), 39–50. doi:10.1207/S15326985EP3501_5

Gilbert, & Graham. (2010). Teaching Writing to Elementary Students in Grades 4–6: A National Survey. *The Elementary School Journal*, *110*(4), 494–518. doi:10.1086/651193

Gillespie, A., Olinghouse, N. G., & Graham, S. (2013). Fifth-Grade Students' Knowledge about Writing Process and Writing Genres. *The Elementary School Journal*, *113*(4), 565–588.

Graham, S., Berninger, V. W., Abbott, R. D., Abbott, S. P., & Whitaker, D. (1997). Role of mechanics in composing of elementary school students: A new methodological approach. *Journal of Educational Psychology*, *89*(1), 170–182. doi:10.1037//0022-0663.89.1.170

Graham, S., & Harris, K. R. (2013). Common Core State Standards, Writing, and Students with LD: Recommendations. *Learning Disabilities Research & Practice*, *28*(1), 28–37. doi:10.1111/ldrp.12004

Graham, S., & Harris, K. R. (2015). Common Core State Standards and Writing Introduction to the Special Issue. *The Elementary School Journal*, *115*(4), 457–463.

Graham, S., Harris, K. R., Fink-Chorzempa, B., & MacArthur, C. (2003). Primary grade teachers' instructional adaptations for struggling writers: A national survey. *Journal of Educational Psychology*, *95*(2), 279–292. doi:10.1037/0022-0663.95.2.279

Graham, S., Harris, K. R., & Fink, B. (2000). Is handwriting causally related to learning to write? Treatment of handwriting problems in beginning writers. *Journal of Educational Psychology*, *4*(Dec), 620–633. Retrieved from http://psycnet.apa.org/journals/edu/92/4/620/

Graham, S., Harris, K. R., & Hebert, M. (2011). *Informing Writing: The Benefits of Formative Assessment*.

Graham, S., Harris, K. R., & Macarthur, C. (2006). Explicitly Teaching Struggling Writers: Strategies for Mastering the Writing Process. *Intervention in School and Clinic*, *41*(5), 290–294. doi:10.1177/10534512060410050601

Graham, S., Harris, K. R., & Mason, L. (2005). Improving the writing performance, knowledge, and self-efficacy of struggling young writers: The effects of self-regulated strategy development. *Contemporary Educational Psychology*, *30*(2), 207–241. doi:10.1016/j.cedpsych.2004.08.001

Graham, S., Harris, K. R., & Santangelo, T. (2014). Research-Based Writing Practices and the Common Core: Meta-Analysis and Meta-Synthesis. *The Elementary School Journal*, *115*(4), 498–522. doi:10.1086/681964

Graham, S., & Hebert, M. (2010). *Writing to Read: Evidence for How Writing Can Improve Reading*.

Graham, S., & Hebert, M. (2011). Writing to Read: A Meta-Analysis of the Impact of Writing and Writing Instruction on Reading. *Harvard Educational Review*, *81*(4), 710–744.

Graham, S., Hebert, M., Paige Sandbank, M., & Harris, K. R. (2014). Assessing the Writing Achievement of Young Struggling Writers: Application of Generalizability Theory. *Learning Disability Quarterly*, 0731948714555019–. doi:10.1177/0731948714555019

Graham, S., McKeown, D., Kiuhara, S., & Harris, K. R. (2012). A meta-analysis of writing instruction for students in the elementary grades. *Journal of Educational Psychology*, *104*(4), 879–896. doi:10.1037/a0029185

Graham, S., & Perin, D. (2007). A meta-analysis of writing instruction for adolescent students. *Journal of Educational Psychology*, *99*(3), 445–476. Retrieved from http://psycnet.apa.org/journals/edu/99/3/445/

Graham, S., Schwartz, S. S., & MacArthur, C. A. (1993). Knowledge of writing and the composing process, attitude toward writing, and self-efficacy for students with and without learning disabilities. *Journal of Learning Disabilities*, *26*, 237–249. doi:10.1177/002221949302600404

Haney, M. R., Bissonnette, V., & Behnken, K. L. (2003). The relationship among name writing and early literacy skills in kindergarten children. *Child Study Journal*, *33*(2), 99–115.

Harris, K. R., Adkins, M., & Graham, S. (2014). Practice-based professional development and Self-Regulated Strategy Development for Tier 2, at-risk writers in second grade. *Contemporary Educational Psychology*. doi:10.1016/j.cedpsych.2014.02.003

Harris, K. R., & Graham, S. (2009). Self-regulated strategy development in writing: Premises, evolution, and the future. *British Journal of Educational Psychology*, *2*(6), 113–135. doi:10.1348/978185409X422542

Harris, K. R., Graham, S., Chambers, A. B., & Houston, J. D. (2014). Turning Broccoli Into Ice Cream Sundaes: Self-Regulated Strategy Development for Persuasive Writing Using Informational Text. In K. Ganske (Ed.), *Write Now! Empowering Writers in Today's K-6 Classroom* (pp. 87–112). International Reading Association.

Harris, K. R., Graham, S., & Mason, L. H. (2006). Improving the Writing, Knowledge, and Motivation of Struggling Young Writers: Effects of Self-Regulated Strategy Development With and Without Peer Support. *American Educational Research Journal*, *43*(2), 295–340. doi:10.3102/00028312043002295

Harris, K. R., Lane, K. L., Graham, S., Driscoll, S. A., Sandmel, K., Brindle, M., & Schatschneider, C. (2012). Practice-Based Professional Development for Self-Regulated Strategies Development in Writing: A Randomized Controlled Study. *Journal of Teacher Education*, *63*(2), 103–119. doi:10.1177/0022487111429005

Harris, K. R., Santangelo, T., & Graham, S. (2008). Self-regulated strategy development in writing: Going beyond NLEs to a more balanced approach. *Instructional Science*, *36*(5-6), 395–408. doi:10.1007/s11251-008-9062-9

Hayes, J. R. (2011). Kinds of Knowledge-Telling: Modeling Early Writing Development. *Journal of Writing Research*, *3*(1987), 73–92.

Hayes, J. R. (2012). Modeling and Remodeling Writing. *Written Communication*, *29*(3), 369–388. doi:10.1177/0741088312451260

Hayes, J. R., & Olinghouse, N. G. (2015). Can cognitive writing models inform the design of the Common Core State Standards? *The Elementary School Journal*, *115*(4), 480–497. doi:10.1086/681909

Hemphill, F. C., Vanneman, A., Hamilton, L., Baldwin Anderson, J., Rahman, T., & Anderson, J. B. (2011). *Achievement Gaps: How Hispanic and White Students in Public Schools Perform in Mathematics and Reading on the National Assessment of Educational Progress*. *Statistical Analysis Report*. doi:10.1037/e595292011-001

Hill, A. L., Degnan, K. a, Calkins, S. D., & Keane, S. P. (2006). Profiles of externalizing behavior problems for boys and girls across preschool: the roles of emotion regulation and inattention. *Developmental Psychology*, *42*(5), 913–928. doi:10.1037/0012-1649.42.5.913

Hoff, E., Core, C., Place, S., Rumiche, R., Señor, M., & Parra, M. (2012). Dual language exposure and early bilingual development. *Journal of Child Language*, *39*(1), 1–27. doi:10.1017/S0305000910000759

Hüttner, J. (2008). The genre(s) of student writing: developing writing models. *International Journal of Applied Linguistics*, *18*(2), 146–165. doi:10.1111/j.1473-4192.2008.00200.x

Jimerson, S., Egeland, B., & Teo, A. (1999). A longitudinal study of achievement trajectories: Factors associated with change. *Journal of Educational Psychology*, *91*(1), 116–126. doi:10.1037//0022-0663.91.1.116

Jung, T., & Wickrama, K. (2008). An introduction to latent class growth analysis and growth mixture modeling. *Social and Personality Psychology Compass*, *2*(1), 302–317. doi:10.1111/j.1751-9004.2007.00054.x

Kamberelis, G. (1999). Genre Development and Learning: Children Writing Stories, Science Reports, and Poems. *Research in the Teaching of English*, *33*, 403–460. Retrieved from http://www.jstor.org/stable/40171463

Kemp, N., & Bushnell, C. (2011). Children's text messaging: abbreviations, input methods and links with literacy. *Journal of Computer Assisted Learning*, *27*(1), 18–27. doi:10.1111/j.1365-2729.2010.00400.x

Kim, Y.-S., Puranik, C. S., & Otaiba, S. Al. (2015). Developmental Trajectories of Writing Skills in First Grade: Examining the Effects of SES and Language and/or Speech Impairments. *The Elementary School Journal*, *115*(4), 593–613. doi:10.1086/681971

Lachman, M. E. (2006). Perceived control over aging-related declines: Adaptive beliefs and behaviors. *Current Directions in Psychological Science*, 15, 282–286. doi:10.1111/j.1467-8721.2006.00453.x

Ladd, G. W., Birch, S. H., & Buhs, E. S. (1999). Children's social and scholastic lives in kindergarten: related spheres of influence? *Child Development*, *70*(6), 1373–1400. doi:10.1111/1467-8624.00101

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, *33*, 159-174.

Langer, J. A. (1985). Children's Sense of Genre: A Study of Performance on Parallel Reading and Writing Tasks. *Written Communication*, *2*(2), 157–187. doi:10.1177/0741088385002002003

Lee. V. E. (2000). Using hierarchical linear modeling to study social contexts: The case of school effects. *Educational Psychologist, 35,* 125–141.

Lyons, K. E., & Ghetti, S. (2010). Metacognitive development in early childhood: New questions about old assumptions. In A. Efklides & P. Misailidi (Eds.), *Trends and prospects in metacognition research* (pp. 259-278). NY: Springer.

MacGinitie, W.H., MacGinitie, R.K., Maria, K., & Dreyer, L.G. (2006). Gates-MacGinitie reading tests (4th ed.) [Kit]. Itasca, IL: Riverside.

Malpique, A. A., & Veiga-Simão, A. M. (2014). Assessing Self-Regulated Strategies for School Writing: Cross-Cultural Validation of a Triadic Measure. *Journal of Psychoeducational Assessment*, 1–13. doi:10.1177/0734282914547873

Malpique, A. A., & Veiga-Simão, A. M. (2015). Argumentative writing by junior high school students: discourse knowledge and writing performance / Escritura argumentativa en alumnos de secundaria: conocimiento sobre el discurso y rendimiento en la escritura. *Infancia Y Aprendizaje*. doi:10.1080/02103702.2015.1111609

McBride Murry, V., Berkel, C., Gaylord-Harden, N. K., Copeland-Linder, N., & Nation, M. (2011). Neighborhood Poverty and Adolescent Development. *Journal of Research on Adolescence*, *21*(1), 114–128. doi:10.1111/j.1532-7795.2010.00718.x

McClelland, M. M., Acock, A. C., Piccinin, A., Rhea, S. A., & Stallings, M. C. (2013). Relations between preschool attention span-persistence and age 25 educational outcomes. *Early Childhood Research Quarterly*, *28*(2), 314–324. doi:10.1016/j.ecresq.2012.07.008

McClelland, M. M., & Cameron, C. E. (2012). Self-Regulation Early Childhood: Improving Conceptual Clarity and Developing Ecologically Valid Measures. *Child Development Perspectives*, *6*(2), 136–142. doi:10.1111/j.1750-8606.2011.00191.x

McClelland, M. M., Cameron, C. E., Connor, C. M., Farris, C. L., Jewkes, A. M., & Morrison, F. J. (2007). Links between behavioral regulation and preschoolers' literacy, vocabulary, and math skills. *Developmental Psychology*, *43*(4), 947–959. doi:10.1037/0012-1649.43.4.947

McClelland, M. M., Cameron, C. E., Duncan, R., Bowles, R. P., Acock, A. C., Miao, A., & Pratt, M. E. (2014). Predictors of early growth in academic achievement: the head-toes-knees-shoulders task. *Frontiers in Psychology*, *5*(June), 1–14. doi:10.3389/fpsyg.2014.00599

McConnell, A. E., Little, K. S., & Martin, J. E. (2015). Transition planning and writing instruction: the effects of a brief intervention. *British Journal of Special Education*, *42*(1), 87–111. doi:10.1111/1467-8578.12071

McCutchen, D. (1986). Domain knowledge and linguistic knowledge in the development of writing ability. *Journal of Memory and Language*, *25*, 431–444. Retrieved from http://www.sciencedirect.com/science/article/pii/0749596X86900367

Mehta, P. D., Foorman, B. R., Branum-Martin, L., & Taylor, W. P. (2009). Literacy as a Unidimensional Multilevel Construct: Validation , Sources of Influence , and Implications in a Longitudinal Study in Grades 1 to 4. *Scientific Studies of Reading*, *9*(2), 85–116. doi:10.1207/s1532799xssr0902_1

Molfese, V. J., Beswick, J. L., Jacobi-Vessels, J. L., Armstrong, N. E., Culver, B. L., White, J. M., Ferguson, M. C., Moritz Radasill, K., & Molfese, D. L. (2010). Evidence of alphabetic knowledge in writing: connections to letter and word identification skills in preschool and kindergarten. *Reading and Writing*, *24*(2), 133–150. doi:10.1007/s11145-010-9265-8

Morrison, F. J., Ponitz, C. C., & McClelland, M. (2010). Self-Regulation and Academic Achievement in the Transition to School. In S. D. Calkins & M. A. Bell (Eds.), *The Developing human brain: Development at the intersection of emotion and cognition* (pp. 203–224). Washington, D.C.: American Psychological Association. doi:http://dx.doi.org/10.1037/12059-011

Nagy, W., Berninger, V. W., & Abbott, R. D. (2006). Contributions of Morphology Beyond Phonology to Literacy Outcomes of Upper Elementary and Middle-School Students. *Journal of Educational Psychology*, *98*(1), 134–147. doi:10.1037/0022-0663.98.1.134

Negretti, R. (2012). Metacognition in Student Academic Writing: A Longitudinal Study of Metacognitive Awareness and Its Relation to Task Perception, Self-Regulation, and Evaluation of Performance. *Written Communication*, *29*(2), 142–179. doi:10.1177/0741088312438529

NICHD, & IRA. (2012). *The Reading-Writing Connection*. *School Library Media Activities Monthly*. Retrieved from http://eric.ed.gov/?id=EJ567654

Nippold, M. A., Ward-Lonergan, J. M., & Fanning, J. L. (2005). Persuasive Writing in Children, Adolescents, and Adults: A study of syntactic, semantic, and pragmatic development. *Language, Speech, and Hearing Services in Schools*, *36*, 125–139. Retrieved from http://sig1perspectives.pubs.asha.org/article.aspx?articleid=1780400

Nylund, K. L., Asparoutiov, T., & Muthen, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling: A Multidisciplinary Journal*, *14*(4), 535–569. doi:10.1080/10705510701575396

Nystrand, M., Cohen, A. S., & Dowling, N. M. (1993). Addressing Reliability Problems in the Portfolio Assessment of College Writing. *Educational Assessment*, *1*(1), 53–70. doi:10.1207/s15326977ea0101_4

Olinghouse, N. G. (2008). Student- and instruction-level predictors of narrative writing in third-grade students. *Reading and Writing*, *21*(1-2), 3–26. doi:10.1007/s11145-007-9062-1

Olinghouse, N. G., & Graham, S. (2009). The Relationship Between Discourse knowledge and the writing performance of Elementary-grade students. *Journal of Educational Psychology*, *101*(1), 37–50. doi:10.1037/a0013462

Olinghouse, N. G., Graham, S., & Gillespie, A. (2015). The Relationship of Discourse and Topic Knowledge to Fifth Graders' Writing Performance. *Journal of Educational Psychology*, *107*(2), 391–406.

Olinghouse, N. G., & Leaird, J. T. (2008). The relationship between measures of vocabulary and narrative writing quality in second- and fourth-grade students. *Reading and Writing*, *22*(5), 545–565. doi:10.1007/s11145-008-9124-z

Olinghouse, N. G., & Wilson, J. (2013). The relationship between vocabulary and writing quality in three genres. *Reading and Writing*, *26*(1), 45–65. doi:10.1007/s11145-012-9392-5

Olive, T., Favart, M., Beauvais, C., & Beauvais, L. (2009). Children's cognitive effort and fluency in writing: Effects of genre and of handwriting automatisation. *Learning and Instruction*, *19*(4), 299–308. doi:10.1016/j.learninstruc.2008.05.005

Pajares, F. & Johnson, M. (1996). Self-efficacy beliefs and the writing performance of entering high school students. *Psychology in the Schools*, *33*(April 1995), 163–175.

Pajares, F., Miller, M. D., & Johnson, M. J. (1999). Gender differences in writing self-beliefs of elementary school students. *Journal of Educational Psychology*, *91*(1), 50–61. doi:10.1037//0022-0663.91.1.50

Pajares, F. & Valiante, G. (2001) Gender Differences in Writing Motivation and Achievement of Middle School Students: A Function of Gender Orientation? *Contemporary Educational Psychology, 26,* 366-381.

PARCC Scoring Rubric (2015) Retrieved from http://www.parcconline.org/assessments/test-design/ela-literacy/test-specifications-documents

Penno, J. F., Wilkinson, I. a. G., & Moore, D. W. (2002). Vocabulary acquisition from teacher explanation and repeated listening to stories: Do they overcome the Matthew effect? *Journal of Educational Psychology*, *94*(1), 23–33. doi:10.1037//0022-0663.94.1.23

Pentimonti, J. M., Justice, L. M., & Kaderavek, J. N. (2014). School-readiness profiles of children with language impairment: linkages to home and classroom experiences. *International Journal of Language & Communication Disorders*, *49*, 567–583. doi:10.1111/1460-6984.12094

Ponitz, C. C., McClelland, M. M., Matthews, J. S., & Morrison, F. J. (2009). A structured observation of behavioral self-regulation and its contribution to kindergarten outcomes. *Developmental Psychology*, *45*(3), 605–619. doi:10.1037/a0015365

Prat-Sala, M., & Redford, P. (2012). Writing essays: does self-efficacy matter? The relationship between self-efficacy in reading and in writing and undergraduate students' performance in essay writing. *Educational Psychology*, *32*(1), 9–20. doi:10.1080/01443410.2011.621411

Purcell-Gates, V. (1996). Stories, coupons, and the TV Guide: Relationships between home literacy experiences and emergent literacy knowledge. *Reading Research Quarterly*, *31*(4), 406–428. Retrieved from http://onlinelibrary.wiley.com/doi/10.1598/RRQ.31.4.4/abstract

Ram, N., & Grimm, K. J. (2009). Growth mixture modeling: A method for identifying differences in longitudinal change among unobserved groups. *International Journal of Behavioral Development, 33,* 565-576.

Raudenbush, S.W., & Bryk, A.S. (2002). Hierarchical linear models: Applications and data analysis methods (2nd ed.). Thousand Oaks, CA: Sage.

Ready, T., Edley, C., & Snow, C. (Eds.), Achieving high educational standards for all: Conference summary. Washington, DC: National Academy Press.

Rijlaarsdam, G., Van den Bergh, H., Couzijn, M., Janssen, T., Braaksma, M., Tillema, M., Van Steendam, E., Raedts, M. (2010). Writing. In Harris, K.R, Graham, S., & Urdan, T. (Eds.), *American psychological association educational psychology handbook* (Vol. 3, pp. 207-218). Washington, DC: American.

Saddler, B., & Graham, S. (2007). The Relationship between Writing Knowledge and Writing Performance among More and Less Skilled Writers. *Reading & Writing Quarterly*, *23*(3), 231–247. doi:10.1080/10573560701277575

Schmitt, S. a., Pratt, M. E., & McClelland, M. M. (2014). Examining the Validity of Behavioral Self-Regulation Tools in Predicting Preschoolers' Academic Achievement. *Early Education and Development*, *25*(5), 641–660. doi:10.1080/10409289.2014.850397

Scott, C. M. (2012). Learning to Write. In H. W. Catts & A. G. Kamhi (Eds.), *Language and Reading Disabilities* (pp. 244–264). Needham Heights: Allyn & Bacon.

Shanahan, T., & Lonigan, C. J. (2010). The National Early Literacy Panel: A Summary of the Process and the Report. *Educational Researcher*, *39*(4), 279–285. doi:10.3102/0013189X10369172

Tower, C. (2003). Genre development and elementary students' informational writing: A review of the literature. *Reading Research and Instruction*, *42*(4), 14–39. doi:10.1080/19388070309558394

Troia, G. A., Graham, S., & Harris, K. R. (2016). Writing and students with language and learning disabilities. In J. M. Kauffman, D. P. Hallahan, & P. C. Pullen (Eds.), *Handbook of special education* (2nd ed.). London: Routledge. doi:10.1016/0270-3092(81)90032-1

Troia, G. A., & Olinghouse, N. G. (2013). Featured Research Commentary The Common Core State Standards and Evidence-Based Educational Practices : The Case of Writing. *School Psychology Review*, *42*(3), 343–357.

Verhoeven, L., & Leeuwe, J. Van. (2008). Prediction of the development of reading comprehension: A longitudinal study. *Applied Cognitive Psychology*, *22*, 407–423. doi:10.1002/acp

White, M.J. & Bruning, R. (2004) Implicit writing beliefs and their relation to writing quality. *Contemporary Educational Psychology, 30,* 166-189.

Wong, B. Y. L. (2014). Research on Genre-Specific Strategies for Enhancing Writing in Adolescents with Learning Disabilities. *Learning Disabilities Research and Practice*, *20*(2), 140–159.

Woodcock, R.W., McGrew, K.S., & Mather, N. (2001). Woodcock- Johnson III tests of achievement. Itasca, IL: Riverside

Yoshikawa, Hirokazu, & Hsueh, JoAnn. (2001). Child development and public policy: Toward a dynamic systems perspective. *Child Development, 72*(6), 1887-1903.

APPENDIX A

TEACHER WRITING SURVEY

Please complete the following questions

1. Please circle your evaluation of the **quality** of the preparation you received for teaching writing within your teacher certification program. If you did not attend a teacher certification program, check here.____

inadequate poor adequate very good exceptional

Please circle the appropriate response.

	Strongly Disagree	Moderately Disagree	Disagree Slightly	Agree Slightly	Moderately Agree	Strongly Agree
2. I like to teach writing.	1	2	3	4	5	6
3. I believe reading & writing skills support one another.	1	2	3	4	5	6
4. I like to write.	1	2	3	4	5	6
5. I am effective at teaching writing.	1	2	3	4	5	6

Please complete each question below:

6. During an average week, how many minutes do your children spend writing? (**This does not include instruction. It does include time spent planning, drafting, revising, and editing text that is paragraph length or longer**). _____

7. During an average week, how many minutes do you spend **teaching/leading** each of the following?

Spelling_____ Handwriting_____ Revising Strategies_____

Grammar and Usage_____ Planning Strategies_____

Explicit Writing Instruction_____Child Writing Time_____

Interactive Writing (Writing as a group)_____Writer's Workshop_____

8. What percentage of your instructional time for writing reported in item 6 involves the following (Please give a figure from 0% to 100%):

Whole Class Teacher Managed _____% Small Group Teacher Managed _____%

Small Group Peer Managed _____% Individual Child Self Managed _____%

9. Please check which of the following writing activities your students have done in the past quarter:

_____ Stories _____ Personal Narratives _____ Journal Writing _____ Poems

_____ Lists _____ Book Reports _____ Books _____ Comic strips _____ Plays

_____ Alphabet Books _____ Completing Worksheets _____ Copying Text

_____ Drawing a picture and writing something to go with it _____ Writing letters to another person

_____ Autobiographies _____ Biographies _____ Writing to persuade

_____ Writing to inform _____ Writing summaries _____ Writing in response to material read

_____ Other types of writing (Please specify): _____

10. Have the Common Core State Standards influenced what you do during writing instruction?
_____ Yes _____ No
If yes, please explain how: _____

_____

_____

_____

11. Have the Arizona State Standards influenced what you do during writing instruction?
_____ Yes _____ No
If yes, please explain how: _____

_____

_____

If you have any additional information about your writing program that you would like to share with us, please do so here:

APPENDIX B

STUDENT WRITING PROMPTS

Student Instructions Script and Writing Prompts

Student Instructions Script

"Today you will be writing an *opinion* essay about *whether children should be able to choose their own pets (why or why not)*. Go into as much detail as you can. You should write as if you were writing an assignment for your teacher. Keep in mind everything that you know about good writing. You will have until *lunchtime*, about *30* minutes, to complete your essay. You don't have to take the whole time, once you finish raise your hand and I will pick up your writing, *bring you back to your classroom and give you something new to work on*. I will let you know when you have 5 minutes remaining.

You will be writing in pen, if you make a mistake just cross it out and continue writing. If you finish early please re-read your writing and make any necessary changes before you raise your hand to tell me you're done.

If you have any questions while writing about *whether children should be able to choose their own pets (why or why not)* just raise your hand, you don't have to get up. Are there any questions before we start?"

*These directions will be altered where italicized to fit each prompt, specific classroom schedule, and school. The prompt will be read twice within the instructions, once at the beginning and again when asking for questions. The test proctors may also write the prompt on the board and will be allowed to repeat the prompt to a student if they specifically request it. Prior to these directions their teacher will tell the students what task(s) they will be completing after they finish the writing task. An effort will be made to ensure the tasks following the writing assessment are not significantly easier or more appealing to the students, reducing their desire to rush through the writing task.

Prompts

Informative/explanatory Prompt

*Tell me about (describe) your favorite person, it can be someone in your family, a friend, or a character.

Opinion Prompt

*Think about whether or not children should be allowed to choose their own pets. Decide what you believe and write an essay that will convince someone to agree with you.

Note. (*) Identifies prompts adapted from Graham, Harris, & Mason (2005).

APPENDIX C

GENRE-BASED SCORING RUBICS

Genre-based Scoring Rubric: Anchors & Examples

Opinion Genre	**0**	**1**	**2**	**3**
1. Introduce premise (& premise is clear)	Intro/Topic sentence is not present	Topic sentence is incomplete or unclear	Topic sentence is present, but poor	Topic sentence is present and clear
* Must be related to prompt topic for credit. *Introduces Essay * Specifies the position on a topic *If the introduction strings together one idea after another, end it at the first natural break. *Intro is considered the first "complete thought". If student begins listing additional info the intro stops after the "first because"*	"Yes, because they're the ones who want one." "My favorite animal is a hamster." "No, because it wouldn't be fair to the principal or the children." *in this examples there is no premise, just a reason	"I will choose my pet because I can choose a cute pet." "I think they should because they will get scared…" "They should choose because…"	"Children should pick their own pet because your parents will pick the kind of pet that you don't like." "Children are not supposed to pick the pet."	"My opinion is that yes, children should choose their own pet, because what if they don't like it and they can't take it back?" "I think that children should choose their own pet because kids are responsible and they have a very good taste in pets."
2. Non-functional text	A majority of the text is non-functional	Non-functional text is present, takes away from premise	Non-functional text is minor, little influence on readability	Non-functional text is not present
*Off topic content and repeated words that serve no purpose are both non-	***"I should get a dog because they are so cute. My mom likes dogs so we are going***	"I should be able to pick out my pet ***while my mom picks a cat, and my dad picks out a***	"I think kids should pick their own pets. Playing with pets is fun. I know because I	*I want it so SO much.

functional *Anything that is repeated or not related to the prompt (e.g., "I want a dog because dogs are fluffy" does not help relay an opinion about whether kids should be able to choose their own pets or not) * Does not include a repetition that serves a discernible rhetorical purpose."	***to get a dog. My dad is nice and he gave me a dog. My dad was nice to me because he gave me two dogs. I said thank you dad for giving me a dog and he gave me hug and I was hug happy."*** *nothing or almost nothing related to the prompt is included - not based on percentage of non-functional text	***dog. My name is Naomi and I want a dog."***	play with my cat all the time, that I love a lot, ***all day, all in the city. So you can read. I would like if you read this book it is a cute book."***	
3. Reason(s)	Reasons for opinion are not present	Reasons for opinion incomplete or unclear	Reason(s) for opinion are present and clear	Reasons are present, insightful, clear, and support opinion
*Intro and conclusion are not counted as reasons (Exception: If the intro scores 0 points. Must relate to the prompt to get credit) *Includes explanations that support or refute a position	"Yes, because they choose goldfish." "Children are allowed to pick their pets because some animals can be bad. ***My mom likes nice dogs."***		"I think that children should choose their own pet because kids are responsible and they have a very good taste in pets. ***They know which to keep and not to, and sometimes adults overreact too.***"	"I think that kids should be able to pick their own pet. ***The first reason is because you don't know if your kids like it or not. Second, they will take better care of it if it's their choice."***

*Independent clauses that occur within the essay, after the topic sentence (if there is one) * Contrasting statements can be reasons (not elaborations) * Has to be a complete thought * Has to be unique (not repeating same reason)			"I think that kids choose their own pet. **Why? Because kids pick well**." "No, because you would be lonely."	
4. Elaborations	Elaborations are not present	Elaborations to support reasons are incomplete or unclear	Elaborations are present and clear.	Elaborations are present, clear, and high quality
* Often start with "because" and then a dependent clause or complete sentence * Follows a reason as a non-contrasting independent clause *May directly follow topic sentence, if it's a completed thought * Never the first sentence of ¶ *May involve saying more about a	"Children are allowed to pick their pets because some animals can be bad. My mom likes nice dogs." "Children should not be able to pick their pet because if you have a brother you might fight over it."	"I think children can vote for pets because my family vote for pets. So everyone vote for pets, so I have to vote for pets too, but someone don't like pets, it is Mya ***because she kicks them, but everyone doesn't like Mia, so everyone has to vote for pets***." *Score a 1 if	"I think you should pick your pet because if someone picks your pet and you are allergic to it or you don't like it you might let someone else adopt them***. *If you pick your own pet you'll love it more, as the perfect pet.*** If someone else picks your pet you would not like it."	"Children should be able to choose their pets because they will have to take care of them. ***Children will have to feed the pet every day and take the pet for walks. They will have to brush the pet and play with them too.***"

subject/idea, describing specific conditions, or giving examples		you have to extrapolate (i.e., elaboration is not clear)		
5. Conclusion	A conclusion is not present	Conclusion is incomplete or unclear	Conclusion is presented poorly	Conclusion is present and clear
*Closes what has been written * Not all essays have conclusions * A good conclusion restates a majority of the intro/prompt *If there is a strong conclusion before the last sentence, count that as the conclusion	"I think they should because they will get scared if they don't like it and the child will get mad and push the dog and they will bug the mom over and over and then the mom will say 'yes, I will get you a dog' and they went to the pet store."	"…and those are all of the things that you should get a pet." *Conclusion is loosely stated and makes little sense.	"The End." "That's why kids should pick."	"I think that kids choose their own pet, why? Because kids pick well. ***That's why I think that kids should pick their own pets."*** ***"…and those are all of the reasons why kids should pick their own pet."***
6. Persuasive or emotional language	Persuasive or emotional language is not present	Persuasive or emotional language is incomplete or unclear	Persuasive or emotional language is present but used poorly	Persuasive or emotional language is present and clear
*Can be done through punctuation or word choice *Extreme or exaggerated terms *Qualifiers that imply emotion * Direct mention of emotions		"Kids should get pets because maybe they are ***lonely***. They can get a pet for something to do and that is ***sad***."	"…when you're little and your parents are here you can't get a pet and ***that's sad***. Your parents will say "***No...No...No! " and that makes people sad***. But when you get older	"I think children should pick their own pets because if adults could pick pets why can't we? ***It's not fair*** for grown-ups to get all the stuff they want. Adults can't just keep

			you can get a pet and make people ***happy."***	getting stuff. ***At least get us something. PLEASE***!" *Just mentioning an emotion is not enough for a 3.
7. Addresses opposing viewpoint(s)	Addressing opposite viewpoints is not present	Opposite viewpoints are incomplete or unclear	A single opposite viewpoint is presented	Opposite viewpoint(s) are mentioned and refuted
*Directly or tangentially mentions other potential perspectives *Faulty reasoning does not receive credit		***"You could let someone else pick your pet***, But I say that you should pick your own pet so you can love and care for your pet."	***"Some moms and dads might think that choosing your own pet is something that kids should not do***, but I think we should."	"Some people may say that children shouldn't pick the pet but they're wrong because kids have money too." *Conclusion must refute opposite viewpoint to get a "3"
8. Uses linking words to connect reasons or opinions (because, and, also etc.)	Linking words are not present.	Linking words are used, but incorrectly (i.e., are not really helpful)	A few linking words are used and they are helpful	A number of linking words are used and improve essay readability ≥ 2 linking words
* Follow an ending punctuation mark in most cases. *Serves to guide the reader through the text		"Kids want to pick their own pets and they should. Also, they want to pick a dog or a cat. Can be out of	"Kids should pick the pets because they're cute. ***Also*** dogs and cats are fuzzy. The End."	"Children shouldn't pick their own pet because maybe your parents have money for only for one. ***Another reason is***, say

* Signal additional ideas, time, examples, results, alternatives, and summaries *Whatever comes after the linking word has to be able to stand on its own *Leads to a new idea *Ignore in non-functional text		order but must be near the beginning of the sentence and has to be an optional word (not required for sentence meaning)		your parents say you can't pick it, then they change their mind and they take you. ***And my last reason*** is you always can if you just be excellent to them."

Informative Genre	**0**	**1**	**2**	**3**
1. Introduction/ Topic sentence	Topic sentence is not present	Topic sentence is incomplete or unclear	Topic sentence is present, but poor	Topic sentence is present and clear
* Must be related to prompt topic for credit. *Introduces essay *Specifies essay content *If the intro/topic sentence is very long, you may cut it off at the most appropriate place *Intro is considered the first "complete thought". If student begins listing additional info the intro stops after the "first because"*	"My mom. She is nice, she's very sweet and she keeps me safe." Incomplete sentence or thought. Broad statement but follows very specific example or anecdote (the mom/nice example)	"My favorite is Dan." I like my cousin because he is nice. I love my mom. *this is an incomplete thought	"My favorite person in the family is Barney because sometimes we get mad at each other." *poorly written or poor content; the above example doesn't make sense, but you know it's a topic sentence	"My favorite person is my mom." *the writing and content are clear and make sense
2. Non-functional text	A majority of the text is non-functional	Non-functional text is present, takes away from premise	Non-functional text is minor, little influence on readability	Non-functional text is not present
*Off topic content and repeated words that serve no purpose are both non-functional	"Dad, mom, cousin, my dad, and my mom, our grandma, they have the best. My uncle is	"play by play" of the day without description of favorite person/friend	"play by play" of the day after brief description of friend	"My favorite person is my mom because she takes care of me. She cooks for me and gets me

	funny. Baby cousin, friend. I love my grandma. I have two baby cousins. I have two cousins."			clothes. Also, she helps me with my school work. She has brown hair and brown eyes just like me. She is my favorite person in the world." "Now, that is a good best bff, and I love her as a friend: friends forever."
3. Has cohesive main idea(s)/topic(s)	Main idea(s) are not present	Main idea(s) are incomplete or unclear	Main idea(s) are present and clear	Main idea(s) are present, clear, and high quality
*Relate to introduction *Further reader's understanding of selected person/people * Has to be a complete and definable thought/topic *Has to be unique (not repeating same reason)	"My mom, my dad, my cousins, my pets."	"My favorite person is my Grandma Lou, my mom, my dad because she gives me goodies money. She loves me."	"My favorite person is Jazz. She likes me. She is nice." Cool, pretty, etc.	More detail and unique descriptions! Playful, good person, speaking to their character or better terms compared to what's used often.
4. Examples & details	Examples are not present	Examples are incomplete or unclear	Examples are present and clear	Examples are present, clear, & provide additional, useful information
* Can be after 'main idea' as	"My favorite person is my	"My favorite person is	"My favorite person is my	"My favorite person is my

a complete sentence or a dependent clause * Not in first sentence of paragraph *May involve: saying more about a subject/idea, or **<u>describing specific events</u>** **<u>*Do not assume that a list of ideas are examples</u>** **<u>*Typically serve to specify the main idea</u>**	friend because we play together. We talk together. We like to sing, dance, and do math. Me and Vivian like to tell secrets to each other. We like to play soccer together." *This example provides a lot of main ideas, but no details/ examples or dependent clauses	Andrew. ***Sometimes me and my friends go swimming***. It's so fun. I also like Ava." "…Then we go take a walk. Then my dad said let's go home girls. Then we ask my dad if we can have ice cream and he said yes and we said OK. Then when we are done we go in my room and we went to her house."	mom because she cooks with me and plays with me. ***One time we drove to the grocery store while my dad was at work***. My mom is smart, talented, strong, and funny. And all of this is why I love my mom."	mom because she cooks with me. ***One time we baked cookies and it was so fun***. My mom is smart, talented, strong, and funny. And all of this is why I love my mom."
5. Final Summary	A conclusion is not present	Conclusion is incomplete or unclear	Conclusion is presented poorly	Conclusion is present and clear
*Closes what has been written * Not all essays have conclusions			"She is the coolest friend ever." "The End."	"Those are the reasons why she is my favorite person."
6. Technical or topic specific vocabulary that's audience appropriate	No technical vocabulary is present	The technical vocabulary is incomplete or unclear	The technical vocabulary is present but used poorly	The technical vocabulary is present and clear
*Physical descriptive words, likes/dislikes, person-		"I like my BFF, she is my number one fan. She has a cool phone.	"I like her because she's nice. She's fun. At recess we play."	"I like her because she's smart, funny, good, polite, pretty, and

centered words and descriptive adjectives *Also consider technical or topic specific vocabulary that is in the Introduction/Topic Sentence *Do not include non-functional text.		She is thycs." Sort of indirect descriptions: "Good at helping"		likes to play. She's also pretty. She has black eyes, long brown hair and always likes to wear headbands."
7. Compares or Contrasts	C or C are not present	C or C are incomplete or unclear	C or C is present and clear	C or C are clear, and help the reader be better informed
*Relating two people or ideas in someway that improves the reader's understanding		"Her hair is the color of my cats' hair." ...just like my dad.	"Her hair is the color of the sun."	"Just like Iron Man, my Minecraft character can fly!" *A good compare/contrast will help you understand something that maybe you wouldn't
8. Use linking words to connect information (more, another, but, etc.)	Linking words are not present.	Linking words are used, but incorrectly (i.e., are not really helpful)	A few linking words are used and they are helpful	A number of linking words are used and improve essay readability (≥ 2 linking words)
* Follow an ending punctuation mark in most cases. *Serve to guide the reader through the text			"… Also, he does his work and never turns it in late."	

* Signal additional ideas, time, examples, results, alternatives, and summaries * Ignore in non-functional text				

Additional Notes for Scorers:

- An **independent clause** (or main clause) is a clause that can stand by itself as a simple sentence. An **independent clause** contains a subject and a predicate and makes sense by itself.

- A **dependent clause** is a group of words that contains a subject and verb but does not express a complete thought. A **dependent clause** cannot be a sentence. Often a **dependent clause** is marked by a **dependent** marker word.
    - Some common dependent markers are: **after**, **although**, **as**, **as if**, **because**, **before**, **even if**, **even though**, **if**, **in order to**, **since**, **though**, **unless**, **until**, **whatever**, **when**, **whenever**, **whether**, and **while**.

APPENDIX D

CURRICULUM WRITING ACTIVITIES TABLES

Curriculum: Houghton Mifflin 2nd Grade

Activity	Genre	Unit	Page	Minutes	Grade Equivalent	Std 1	Std 2
Writing Poetry Discussing the Model		1	151K	15	3.212	W.3.10	
Getting to Know Your Students		1	BTS2	15	2.111	RF.2.4.a.b	W.2.2
Comprehension Challenge/Extension: Fantasy and Realism		1	R27	20	2.213	W.2.2	RL.2.1
Comprehension Challenge/Extension: Predicting Outcomes		1	R29	10	2.213	W.2.5	
Classroom Management Poetry Silly Rhymes		1	T104	30	2.121	W.2.2	
Daily Routines Daily Writing Prompt		1	T107	20	2.121	W.2.8	
Daily Routines Vocabulary		1	T119	15	2.122	W.2.8	
Cross-Curricular Activities Writing Center		1	T12	40	2.111	W.2.5	
Writing: A Response-Journal Entry		1	T135	30	2.122	W.2.6	L.2.3.a
Classroom Management Health Center Medical Equipment		1	T173	30	2.131	W.2.6	
Writing: A Journal Entry		1	T203	15	2.132	W.2.6	L.2.3.a
Language Arts Link		1	T214	10	2.134	L.2.3.a	W.2.5
Improving Writing: Voice		1	T221	20	2.134	W.2.5	
Classroom Management: Dear George		1	T238	40	2.141	W.2.7	
Classroom Management: Language Arts Center		1	T239	40	2.141	W.2.5	
Theme Connections: Leveled Books Pet Show		1	T278	20	2.145	W.2.6	
Theme Connections: Leveled Books Story Maps		1	T278	20	2.145	RL.2.7	W.2.8
Theme Connections: Leveled Books Even Sillier		1	T279	30	2.145	SL.2.4	W.2.8
Classroom Management		1	T28	40	2.111	W.2.5	
Classroom Management Rhyme Time		1	T296	30	2.211	W.2.2	
Writing: A Poem		1	T322	20	2.212	W.2.5	SL.2.4
Improving Writing: Creating Rhythm		1	T333	15	2.214	W.2.5	RF.2.4.a
Writing: Publishing a Poem		1	T342	20	2.215	W.2.5	
Writing: A Character Sketch		1	T55	20	2.112	W.2.8	
Improving Writing: Adding Details		1	T73	20	2.114	W.2.5	
Improving Writing:Adding Details		1	T73	20	2.114	W.2.5	
Story		1	T86	20	2.115	W.2.5	L.2.3
Choosing a Topic		1	T88	20	2.115	W.2.2	
Exploring and Planning		1	T89	25	2.115	W.2.2	
Beginning, Middle, and End		1	T90	20	2.115	W.2.5	
Writing a Title		1	T91	20	2.115	W.2.5	
Proofreading		1	T92	15	2.115	W.2.5	
Revising		1	T92	20	2.115	W.2.5	
Evaluating		1	T94	30	2.115	W.2.5	
Publishing		1	T94	30	2.115	W.2.6	SL.2.1
Leveled Readers Below Level Writing Skill Writing a Trickster Tale		2	301O	15	3.321	W.3.3	
Challenge/Extension: Long Vowels CVCe: o, u, e		2	R11	20	2.325	RF.2.3.a	W.2.5
Writing Poetry		2	R15	25	2.325	W.2.5	
Writing Riddles		2	R19	15	2.325	W.2.2	
Vocabulary Challenge/Extension: High Frequency Words The Park		2	R25	15	2.231	RF.2.4.c	W.2.8
Comprehension Challenge/Extension: Compare and Contrast	IE	2	R29	15	2.241	W.2.8	
Comprehension Challenge/Extension: Write Animals Facts and Opinions	OP	2	R31	15	2.241	W.2.7	
Classroom Management Poetry Center Park Poem		2	T111	20	2.231	W.2.8	RF.2.4.a
Writing: A Paragraph		2	T139	25	2.232	W.2.5	
Responding Comprehension Check		2	T142	20	2.233	RL.2.1	W.K.2
Improving Writing: Main Idea and Details	IE	2	T157	20	2.234	W.2.5	
Writing: A Learning Log Entry		2	T209	25	2.242	W.2.5	
Daily Routine Daily Writing Prompt		2	T211	20	2.243	W.2.2	
Additional Responses Supporting Comprehension		2	T213	15	2.243	W.2.8	
Additional Responses Writing Support		2	T213	15	2.243	W.2.8	SL.2.4
Improving Writing: Telling More		2	T227	10	2.244	W.2.5	
Think and Compare Discuss or Write Writing Support		2	T265	10	2.312	W.2.5	
Connecting Characters		2	T272	30	2.313	W.2.6	
Classroom Management Writing Center My Outside Adventure		2	T29	30	2.221	W.2.2	
Write a Fable		2	T331	25	2.322	W.2.5	
Writing: A Fable		2	T332	25	2.322	W.2.5	
Daily Routines Daily Writing Prompt		2	T341	20	2.324	W.2.2	
Improving Writing: Complete Sentences		2	T343	20	2.322	W.2.8	L.2.2
Writing: Publishing a Fable		2	T352	10	2.325	W.2.5	SL.2.4
Writing: An Answer to a Question		2	T61	25	2.222	W.2.8	
Grammar: Telling Sentences and Questions		2	T78	15	2.224	L.2.2	W.2.8

Improving Writing: Make Complete Sentences		2	T79	20	2.224	W.2.8	L.2.2
Classroom Management Writing Center Animals Names		3	T111	30	2.341	W.2.7	
Writing: Taking Notes		3	T141	15	2.342	W.2.8	
Comprehension Topic/Main Idea/Details	IE	3	T153	15	2.344	W.2.5	
Improving Writing: Choosing What Is Important		3	T158	15	2.344	W.2.2	
Classroom Management Poem from a Box		3	T178	15	2.451	W.2.7	
Writing: A Problem-Solution Paragraph		3	T215	15	2.452	W.2.2	
Daily Routines Daily Writing Prompt		3	T217	20	2.453	W.2.2	W.2.8
Extra Support/Intervention Writing Support		3	T219	25	2.453	W.2.8	SL.2.4
Poetry Link Skill: How to Read a Poem		3	T226	20	2.454	W.2.2	RL.2.2
Improving Writing		3	T233	20	2.454	W.2.5	
Grammar Improving Writing		3	T238	20	2.455	W.2.8	L.2.2
Classroom Management Independent Activities Writing Center My Day		3	T252	40	2.411	W.2.3	
Writing: Writing to Persuade	OP	3	T285	25	2.412	W.2.2	
Improving Writing Audience		3	T303	25	2.414	W.2.2	
Daily Routines Vocabulary		3	T305	20	2.415	W.2.8	L.2.1
Challenge Yesterday's News		3	T329	15	2.421	W.2.7	
English Language Learners		3	T356	20	2.424	W.2.8	
Spelling: Words with th, wh, sh, or ch (tch)		3	T60	10	2.332	RF.2.3	W.2.5
Writing: A Scene		3	T61	20	2.332	W.2.5	RI.2.4
Improving Writing: Using Exact Nouns		3	T79	15	2.334	W.2.5	L.2.1
Grammar: Improving Writing Sentence Combining/Naming Parts		3	T84	20	2.335	W.2.8	L.2.2
Independent Activities Poetry Write a Poem		4	119AA	20	3.611	W.3.4	
Poetry Center Insect Poetry		4	T115	30	2.541	W.2.6	
Writing: A Poem		4	T147	25	2.542	W.2.5	
ELL Supporting Comprehension		4	T151	20	2.543	W.2.8	RL.2.1
Extra Support/Intervention Writing Support		4	T151	25	2.543	W.2.8	
Write a Verse On Level/Challenge		4	T159	20	2.544	W.2.8	
Improving Writing		4	T165	25	2.544	W.2.5	L.2.2
Classroom Management Independent Activities Writing Center A New Ending		4	T185	30	2.545	W.2.5	
Writing: A News Article		4	T215	30	2.552	W.2.2	
Improving Writing Adding Details		4	T233	25	2.554	W.2.2	
Daily Routines Vocabulary		4	T235	20	2.555	W.2.8	
Theme Connections: Leveled Books Animal Tale		4	T292	30	2.514	W.2.2	
Writing: A Biography		4	T340	25	2.522	W.2.1	
Daily Routines Daily Writing Prompt		4	T343	20	2.523	W.2.2	
Improving Writing: Dates and Time-Order Words		4	T351	20	2.524	W.2.5	
Improving Writing: Dates and Time-Order Words		4	T351	20	2.524	W.2.5	
Connecting Character Traits		4	T354	15	2.424	W.2.6	
Writing: Publishing a Biography Ideas for Sharing		4	T360	30	2.525	W.2.2	
Writing: Responding to a Writing Prompt		5	T139	30	2.642	W.2.2	
Improving Writing: Keeping to the Point		5	T157	30	2.644	W.2.2	
Daily Routines Daily Language Practice		5	T191	20	2.652	W.2.2	
Writing: An Information Paragraph	IE	5	T213	25	2.652	W.2.2	
Extra Support/Intervention Writing Support		5	T217	25	2.653	W.2.2	
Improving Writing: Combinig Sentences		5	T231	30	2.654	W.2.2	
Grammar: Improving Writing		5	T236	15	2.655	L.2.1.d	W.2.5
Writing: Dialogue		5	T287	30	2.612	W.2.2	
Daily Routines Vocabulary		5	T307	20	2.615	W.2.8	
Daily Routines Daily Writing Prompt		5	T361	20	2.725	W.2.2	
Writing: A Chapter for a Book		5	T414	15	2.732	W.2.4	
Writing: Publishing a New Chapter for a Book		5	T434	20	2.735	W.2.2	
Writing: An Opinion Paragraph	OP	5	T59	30	2.632	W.2.1	
Extra Support/ Intervention Writing Support		5	T63	25	2.633	W.2.5	
Extra Support/Intervention Putting Yourself in the Poem		5	T70	30	2.634	W.2.5	
Improving Writing: Voice		5	T77	30	2.634	W.2.5	
Grammar: Improving Writing		5	T82	15	2.635	W.2.8	L.2.2
Writing: A Paragraph That Explains	IE	6	2.742	40	2.742	W.2.2	
Writing: Summary		6	T149	30	2.752	W.2.2	
Extra Support/Intervention Understanding the Writer's Purpose		6	T160	20	2.754	W.2.8	
Improving Writing: Paraphrasing		6	T167	20	2.754	W.2.2	
Challenge Word Practice		6	T216	20	2.812	W.2.2	
writing: comparison/Contrast paragraph	IE	6	T217	30	2.812	W.2.2	

Extra Support/Intervention Writing Support		6 T221	30	2.813	W.2.2	
Vocabulary: Using Context		6 T230	20	2.814	W.2.8	
Improving Writing: Giving Examples	IE	6 T235	25	2.814	W.2.2	
Improving Writing: Quotations		6 T305	25	2.614	W.2.2	
Daily Routines Daily Writing Prompt		6 T66	20	2.743	W.2.2	
Extra Support/Intervention Previewing Important Details		6 T74	20	2.744	W.2.2	
Vocabulary: Word Families		6 T76	20	2.744	W.2.8	
Improving Writing: Is It a Sentence?		6 T81	20	2.744	W.2.2	
Daily Routines Vocabulary		6 T83	20	2.745	W.2.8	
Grammar: Improving Writing		6 T86	15	2.745	W.2.2	L.2.2.d

Curriculum: Houghton Mifflin 3rd Grade

Activity	Genre	Unit	Page	Minutes	Grade Equivalent	Std 1	Std 2
Direction Words Extra Support/Intervention		1	117	15	3.132	W.3.4	
Creating a Picture Poem Challenge		1	145	12	3.211	W.3.4	
Comprehension Strategy Evaluate		1	146	10	3.212	W.3.2	
Writer's Craft Alliteration		1	146	15	3.214	W.3.4	
Independent Activities Language Arts Write a Tall Tale		1	10I	30	3.111	W3.3	
Grammar: Subjects and Predicates Practice		1	121J	15	3.134	W.3.4	
Writing: Friendly Letter Drafting		1	121K	15	3.132	W.3.4	
Writing: Friendly Letter Prewriting		1	121K	15	3.131	W.3.4	
Writing: Friendly Letter Publishing		1	121L	10	3.135	W.3.5	
Writing: Friendly Letter Revising		1	121L	15	3.133	W.3.5	
Classroom Management Language Keep It Short!		1	121Y	30	3.141	W.3.5	L.3.1
Classroom Management Language Arts Letter of Advice		1	121Z	15	3.141	W.3.5	
Independent Activities Language Arts Word Calendars		1	137AA	30	3.211	W.3.3	
Skill Review: Prompts for Writing Journal Entry		1	137N	30	3.142	W.3.2	
Skill Review: Prompts for Writing Write to Explain	IE	1	137N	30	3.141	W.3.1.a	
Skill Review: Prompts for Writing An Invitation		1	137O	30	3.144	W.3.4	
Skill Review: Prompts for Writing Friendly Letter		1	137O	30	3.143	W.3.4	
Skill Review: Prompts for Writing Personal Narrative		1	137O	30	3.145	W.3.4	
Independent Activities Language Arts Grits's Story		1	14A	30	3.111	W3.3	
Spelling Proofreading		1	151F	10	3.214	W.3.5	
Grammar Independent Work Practice		1	151J	11	3.214	W.3.4	
Grammar Sentence Game		1	151J	15	3.213	W.3.4	
Writing Poetry Introducing the Format		1	151K	15	3.211	W.3.10	
Leveled ReadersBelow Level Writing Skill Writing a Poem		1	151O	15	3.211	W.3.4	
Leveled Readers On Level Writing Skill Writing a Poem		1	151P	15	3.211	W.3.4	
Leveled Readers Above Level Writing Skill Writing a Poem		1	151Q	15	3.211	W.3.4	
Spelling: Short Vowels Proofreading Game: Word Hunt		1	49F	15	3.114	W.3.5	
Writing: Paragraph That Explains	IE	1	49K	15	3.111	L.3.3	W.3.5
Writing: Paragraph That Explains Discussing the Model	IE	1	49K	15	3.112	W.3.5	L.3.3
Writing: Paragraph That Explains Checking for Errors	IE	1	49L	15	3.114	W.3.3	L.3.3
Writing: Paragraph That Explains Improving Writing: Changing a Questions into a Statement	IE	1	49L	15	3.113	W.3.5	L.3.3
Writing: Paragraph That Explains Sharing Paragraphs	IE	1	49L	15	3.115	W.3.5	SL.3.4
Language Center Grammar Write Captions		1	49M	45	3.115	W.3.5	
Language Center Vocabulary Game		1	49M	20	3.115	W.3.3	L.3.1
Writing Response Journal Entry		1	89K	20	3.121	W.3.4	
Extra Support/Intervention Perspective		2	181	15	3.222	W.3.2.b	
Art Link Skill: How to take Notes		2	182	15	3.224	W.3.8	
Challenge Research Skills		2	185	15	3.224	W.3.6	
Organizing Information Extra Support/Intervention		2	209	10	3.231	W.3.4	
Supporting Comprehension English Language Learners		2	214	10	3.241	W.3.3	
Supporting Comprehension Extra Support/Intervention		2	233	10	3.242	W.3.2	
Writing a New Ending Challenge		2	287	20	3.321	W.3.3	
Writing: Paragraph That Compare and Contrast Drafting		2	185K	20	3.222	W.3.5	
Writing: Paragraph That Compare and Contrast Prewriting		2	185K	20	3.221	W.3.5	
Writing: Paragraph That Compare and Contrast Revising		2	185K	20	3.223	W.3.5	
Writing: Paragraph That Compare and Contrast Proofreading		2	185L	20	3.224	W.3.5	
Writing: Paragraph That Compare and Contrast Publishing		2	185L	20	3.225	W.3.5	
Independent Activities Language Arts Grandma's Diary		2	187R	30	3.221	W.3.2	
Independent Activities Language Arts My Journal		2	213BB	15	3.241	W.3.3	
Writing A Character Sketch Drafting		2	213K	15	3.232	W.3.1.a	
Writing A Character Sketch Prewriting		2	213K	15	3.231	W.3.2	
Writing A Character Sketch Proofreading		2	213L	15	3.234	W.3.5	
Writing A Character Sketch Publishing		2	213L	15	3.235	W.3.6	
Writing A Character Sketch Revising		2	213L	15	3.233	W.3.4	
Classroom Management Independent Activities Language Arts Photo Essay		2	233BB	30	3.311	W.3.5	
Writing An Answer to a Question Activity		2	233K	15	3.241	W.3.2.b	
Writing An Answer to a Question Instruction		2	233K	15	3.242	W.3.4	
Writing: News Article Drafting		2	259K	20	3.312	W.3.5	RI.3.2
Writing: News Article Prewriting		2	259K	20	3.311	W.3.2.a	
Writing: News Article Revising		2	259K	20	3.313	W.3.5	
Writing: News Article Proofreading		2	259L	20	3.314	W.3.8	L.3.2
Writing: News Article Publishing		2	259L	20	3.315	W.3.6	
Independent Activities Language Arts I'm Sorry!		2	279AA	20	3.321	W.3.2	
Writing Trickster Tales Drafting		2	301K	15	3.322	W.3.3	W.3.3.a
Writing Trickster Tales Prewriting		2	301K	15	3.231	W.3.3	
Writing Trickster Tales Proofreading		2	301L	15	3.324	W.3.3	
Writing Trickster Tales Publishing		2	301L	15	3.325	W.3.3	
Writing Trickster Tales Revising		2	301L	15	3.233	W.3.3	
Leveled Readers On Level Writing Skill Writing a Trickster Tale		2	301P	15	3.321	W.3.3	
Leveled Readers Above Level Writing Skill Writing a Trickster Tale		2	301Q	15	3.321	W.3.3	
Comprehension Challenge/Extension: Noting Details Write About Feelings & Ideas about a Tradition		2	R13	10	3.321	W.3.2	

Topic, Main Idea, & Supporting Details Write About Respecting the Environment	IE	2	R15	15	3.321	W.3.1.a
Challenge/Extension Vocabulary Vocabulary Expansion		2	R19	15	3.321	W.3.1.a
Comprehension Challenge/Extension Author's Viewpoint Write a Story		2	R9	10	3.321	W.3.3
Organizing Information Extra Support/Intervention		3	209	10	3.342	W.3.4
Postcards Extra Support/Intervention		3	357	15	3.412	W.3.3
Writer's Craft Character Development		3	369	20	3.521	W.3.3.b
Writing Dialogue Extra Support/Intervention		3	389	16	3.421	W.3.3.b
Challenge Research Dinosaurs		3	430	20	3.444	W.3.2
Independent Activities Language Arts Grandma's Diary		3	187Q	36	3.341	W3.3
Writing Journal Entry Instruction		3	333L	15	3.333	W.3.5
Independent Activities Writing Dav Pilkey's Journal		3	333M	15	3.335	W.3.4
Independent Activities Poetry Flying Dragons Poems		3	361BB	15	3.421	W.3.10
Writing Thank You Note Activity		3	361K	15	3.411	W.3.4
Independent Activities Language Arts Taking Care of Fritz		3	393AA	30	3.431	W.3.1.a
Writing Opinion Paragraph	OP	3	393K	15	3.421	W.3.1.a
Writing Opinion Paragraph Drafting	OP	3	393K	15	3.422	W.3.4
Writing Opinion Paragraph Proofreading	OP	3	393L	15	3.424	W.3.5
Writing Opinion Paragraph Publishing	OP	3	393L	20	3.425	W.3.6
Writing Opinion Paragraph Revising	OP	3	393L	15	3.423	W.3.5
Writing Dialogue Drafting		3	419K	15	3.432	W.3.3.b
Writing Dialogue Prewriting		3	419K	15	3.431	W.3.3.b
Writing Dialogue Publishing		3	419L	15	3.435	W.3.6
Writing Dialogue Revising		3	419L	15	3.433	W.3.3.b
Independent Activities Language Arts Pigzilla		3	419Z	45	3.441	W.3.3
Incredible Stories		3	437B	60	3.444	W.3.3
Independent Activities Unbelievable News Reports		3	437C	30	3.444	W.3.3
Independent Activities Book Reviews		3	437D	30	3.444	W.3.4
Independent Activities Character Sketches		3	437D	30	3.444	W.3.2
Skill Review Prompts for Writing Journal Entry		3	439N	30	3.441	W.3.3
Skill Review Prompts for Writing Opinion Paragraph	OP	3	439O	30	3.443	W.3.1.a
Skill Review Prompts for Writing Story		3	439O	30	3.445	W.3.3
Skill Review Prompts for Writing Thank You Note		3	439O	30	3.442	W.3.2
Skill Review Prompts for Writing Writing Dialogue		3	439O	30	3.444	W.3.3.b
Independent Activities Challenge Write a Story		3	R15	30	3.441	W.3.3
Writing Poem		4	3.451	15	3.451	W.3.5
Acrostic Poem Extra Support/Intervention		4	65	20	3.524	W.3.2
Writer's Craft Similes	IE	4	85	15	3.533	W.3.4
Supporting Comprehension English Language Learners		4	98	15	3.533	W.3.4
Challenge Writing Poetry		4	99	15	3.534	W.3.10
Research Desert Animals Challenge		4	106	30	3.541	W.3.4
People of the Desert Challenge		4	116	15	3.543	W.3.2
Writer's Craft Researching a Subject		4	129	15	3.613	W.3.10
Writer's Craft Biography		4	131	15	3.614	W.3.2
Writer's Craft Drawing Conclusions		4	135	15	3.614	W.3.3
Writing Final Sentences Extra Support/Intervention		4	138	15	3.613	W.3.3
Cross Curricular Activities Language Arts Write a Postcard		4	10I	15	3.451	W.3.2.b
Independent Activities Skill Review Prompts A Journal Entry		4	1119O	30	3.541	W.3.3
Independent Activities Fish Out of Water Stories		4	117D	30	3.541	W.3.3
Independent Activities Skill Review Prompts for Writing Poem		4	119N	30	3.541	W.3.4
Independent Activities Skill Review Prompts for Writing Taking Notes		4	119N	30	3.541	W.3.4
Independent Activities Skill Review Prompts for Problem Solution Essay	IE	4	119O	30	3.541	W.3.2
Independent Activities Skill Review Prompts Opinion Paragraph	OP	4	119O	15	3.541	W.3.3
Writing Biography Drafting		4	147K	15	3.612	W.3.2
Writing Biography Prewriting		4	147K	15	3.611	W.3.2
Writing Biography Proofreading		4	147L	15	3.614	W.3.5
Writing Biography Publishing		4	147L	15	3.615	W.3.5
Writing Biography Revising		4	147L	15	3.613	W.3.4
Leveled Readers Below Level Writing Skill Writing a Biography		4	147O	20	3.611	W.3.2
Leveled Readers On Level Writing Skill Writing a Biography		4	147P	15	3.611	W.3.3
Leveled Readers Above Level Writing A Biography		4	147Q	15	3.611	W.3.10
Independent Activities Language Arts Help Wanted		4	14A	30	3.511	W.3.4
Independent Activities Poetry Puffin Poem		4	14A	20	3.451	W.3.4
Grammar The Verb Be Improving Writing		4	39J	15	3.515	W.3.3
Writing Taking Notes Activity		4	39K	15	3.451	W.3.2.a
Writing Taking Notes Instruction		4	39K	15	3.452	W.3.2.a W.3.2.b
Independent Activities Writing Book Notes		4	39M	30	3.515	W.3.2.a W.3.2.b
Independent Activities Language Arts Here's Ben		4	43R	15	3.521	W.3.4
Independent Activities Language Arts Dear Diary		4	69BB	15	3.531	W.3.3
Grammar Helping Verbs Improving Writing		4	69J	15	3.525	W.3.2
Writing Poem Drafting		4	69K	15	3.522	W.3.10
Writing Poem Proofreading		4	69L	10	3.524	W.3.10
Writing Poem Publishing		4	69L	15	3.525	W.3.6
Writing Poem Revising		4	69L	15	3.523	W.3.10

Writing Problem-Solution Essay Drafting		4 99K	15	3.532	W.3.5	
Writing Problem-Solution Essay Prewriting		4 99K	15	3.531	W.3.2	
Writing Problem -Solution Publishing		4 99L	15	3.535	W.3.2	
Writing Problem-Solution Essay Revising		4 99L	15	3.533	W.3.5	
Writing Problem-Solution Proofreading		4 99L	15	3.534	W.3.2	
Independent Activities Language Arts A Fan Letter		4 99Z	15	3.541	W.3.2	
Comprehension Challenge/Extension Write Facts and Opinions about Iceland	OP	4 R9	15	3.611	W.3.4	
Writer's Craft Vivid Language		5 161	20	3.623	W.3.3	
Travel Diary Extra Support/Intervention		5 179	15	3.625	W.3.3	
Research Skills Challenge		5 183	20	3.622	W.3.2.b	
Writer's Craft Setting		5 239	15	3.643	W.3.3	
Strong Adjectives Extra Support/Intervention		5 247	15	3.645	W.3.2.b	
Writer's Craft Varying Sentence Structure		5 273	20	3.721	W.3.4	
Comprehension Writer's Craft		5 285	20	3.724	W.3.4	
Fairy Tale Cartoons Challenge		5 289	20	3.722	W.3.10	
Writer's Time Words and Phrases		5 291	20	3.725	W.3.3	
Independent Activities Poetry Acrostic Poem		5 152B	30	3.621	W.3.10	
Grammar Subject Pronouns Improving Writing		5 183J	15	3.625	W.3.4	
Writing Play Drafting		5 183K	15	3.622	W.3.3	
Writing Play Prewriting		5 183K	15	3.621	W.3.3.b	
Writing Play Proofreading		5 183L	15	3.624	W.3.4	
Writing Play Publishing		5 183L	20	3.625	W.3.6	
Writing Play Revising		5 183L	21	3.623	W.3.5	
Independent Activities Language Center Writing Write A Pilgrim Play Scene		5 183M	45	3.625	W.3.4	
Independent Activities Language Arts A Letter Home		5 185Q	20	3.631	W.3.3	
Study Skill Using Graphic Organizers		5 213H	15	3.635	W.3.8	
Writing Message Activity		5 213L	15	3.635	W.3.2.b	
Writing Message Instruction		5 213L	15	3.633	W.3.2.b	
Writing Learning Log Entry Instruction		5 251K	20	3.642	W.3.5	
Writing Learning Log Entry Activity		5 251L	20	3.644	W.3.5	W.3.10
Independent Activities Language Arts Character Sketch		5 267AA	30	3.721	W.3.4	
Spelling The /s/ Sound in face Proofreading		5 295E	20	3.724	W.3.5	
Grammar Using Pronouns Improving Writing		5 295J	15	3.725	W.3.5	
Writing Fairy Tale Drafting		5 295K	20	3.722	W.3.3	
Writing Fairy Tale Prewriting		5 295K	15	3.721	W.3.3	
Writing Fairy Tale Proofreading		5 295L	20	3.724	W.3.3	
Writing Fairy Tale Publishing		5 295L	20	3.725	W.3.6	
Writing Fairy Tale Revising		5 295L	20	3.723	W.3.3	
Leveled Readers Below Level Writing Skill Writing A Fairy Tale		5 295P	15	3.721	W.3.4	
Leveled Readers Above Level Building Fluency		5 295Q	15	3.721	W.3.4	
Leveled Readers Above Level Writing Skill Writing A Fairy Tale		5 295Q	15	3.721	W.3.4	
Writer's Craft Mood		6 325	20	3.733	W.3.10	
Extra Support/Intervention Writing An Opinion		6 333	20	3.733	W.3.1.a	
Writer's Craft Vivid Language		6 357	20	3.843	W.3.4	
Word Study Challenge		6 379	15	3.911	W.3.3	
Writer's Craft Imagery		6 387	20	3.913	W.3.3.b	
Writing Announcement Instruction		6 337L	15	3.833	W.3.2	
Writing Summary Drafting		6 367K	15	3.842	W.3.4	
Writing Summary Prewriting		6 367K	15	3.841	W.3.4	
Writing Summary Proofreading		6 367L	15	3.844	W.3.5	
Writing Summary Publishing		6 367L	20	3.845	W.3.6	
Writing Summary Revising		6 367L	15	3.843	W.3.4	
Writing Essay Drafting		6 399K	15	3.912	W.3.4	
Writing Essay Prewriting		6 399K	20	3.911	W.3.4	
Writing Essay Proofreading		6 399L	20	3.854	W.3.5	
Writing Essay Publishing		6 399L	20	3.911	W.3.6	
Writing Essay Revising		6 399L	20	3.913	W.3.4	
Independent Activities Theme Connections Leveled Books Draw A Comic Strip		6 411D	30	3.925	W.3.4	
Independent Activities Skill Review Prompts for Writing Announcement		6 413N	30	3.921	W.3.4	
Independent Activities Skill Review Prompts for Writing Summary		6 413N	30	3.922	W.3.4	
Independent Activities Skill Review Prompts for Writing Personal Essay		6 413O	30	3.923	W.3.3	
Independent Activities Skill Review Prompts for Writing Persuasive Essay	OP	6 413O	30	3.925	W.3.4	
Independent Activities Skill Review Prompts for Writing Description	IE	6 413Q	30	3.924	W.3.2	

APPENDIX E

IRB APPROVAL

ASU Knowledge Enterprise Development

EXEMPTION GRANTED

Carol Connor
Learning Sciences Institute (LSI)
-
Carol.Connor@asu.edu

Dear Carol Connor:

On 8/5/2015 the ASU IRB reviewed the following protocol:

Type of Review:	Modification
Title:	Making Individualized Literacy Instruction Available to All Teachers: Adapting the Assessment-to-Instruction (A2i) Software for Real-World Contexts
Investigator:	Carol Connor
IRB ID:	1305009271
Funding:	Name: ^DUPLICATE, Funding Source ID: US Department of Education, Institute of Education Sciences
Grant Title:	None
Grant ID:	None
Documents Reviewed:	• Fowler Parent Letter revised, Category: Recruitment Materials; • Letter from Superintendent, Category: Consent Form; • Approved forms, Category: Consent Form; • A2i updated protocol, Category: IRB Protocol; • Notice of Award, Category: Sponsor Attachment; • Developing A2i 052913.docx, Category: IRB Protocol; • Revised letter and consent form, Category: Consent Form; • Union City Parent Letter revised by the district, Category: Consent Form; • Fowler Teacher Letter, Category: Recruitment Materials; • Union City Parent Letter revised by the district

	again, Category: Consent Form;

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (1) Educational settings on 8/5/2015.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc:

IRB section showing that Sarah Ingebrand is an approved member of the research team.

View: SF: Study Team Members

Study Team Members

4/30/15, 9:40 AM

1. **Identify each additional person involved in the design, conduct, or reporting of the research:**

Name	Roles	Financial Interest	Involved in Consent	E-mail	Phone
Stephanie Day	Co-Investigator			Stephanie.Lynn.Day@asu.edu	-
Sarah Ingebrand	Graduate Student	no	no	Sarah.Ingebrand@asu.edu	-
Leigh McLean	Graduate Student	no	no	Leigh.McLean@asu.edu	-
Nicole Sparapani	Post Doctoral Scholar	no	no	Nicole.Sparapani@asu.edu	-

BIOGRAPHICAL SKETCH

Sarah Wynonah Ingebrand was born in Minnesota in 1987. She attended Northwestern University where she received her bachelor's degree in Communication Science and Disorders with a double major in Psychology. She joined the Florida State University Developmental Psychology Department as a graduate student in 2011. She received her Master's Degree from Florida State University (FSU) where she was funded by the Predoctoral Interdisciplinary Research Training (PIRT) Fellow through the Florida Center for Reading Research. Following the completion of her Master's, Sarah joined the Arizona State University Developmental Psychology Graduate Program and the Institute for the Science of Teaching & Learning where she would complete her degree. Her research focuses on the development of reading, writing, and spelling skills in elementary and middle school students as well as educational technology, writing instruction, classroom observation, and writing-assessment development. In addition to co-authoring book chapters and research papers, she has presented as a number of conferences. Upon completion of her doctoral degree, Sarah will pursue a career as in the field of developmental psychology and educational technology.